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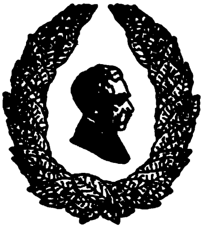

FARLOW
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FLORA HIBERNICA

COMPRISING THE

FLOWERING PLANTS FERNS CHARACEÆ
MUSCI HEPATICÆ LICHENES
AND ALGÆ

OF

IRELAND

ARRANGED ACCORDING TO THE NATURAL SYSTEM

WITH A

SYNOPSIS OF THE GENERA

ACCORDING TO THE LINNÆAN SYSTEM

BY

JAMES TOWNSEND MACKAY M.R.I.A.
ASSOCIATE OF THE LINNÆAN SOCIETY &c &c

> ——————" Behold the tribes
> Of vegetable race, from lichen small
> That o'er the naked rock a vesture flings
> Of gold and purple, to the branchy oak
> Or cedar on the brow of Lebanon,
> How infinitely varied!"
> *W. H. Drummond.*

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TO THE

REVEREND DOCTOR LLOYD,

PROVOST,

AND THE SENIOR FELLOWS OF TRINITY COLLEGE,

DUBLIN,

BY WHOSE MOST LIBERAL ASSISTANCE HE HAS BEEN MAINLY ENABLED TO LAY

THE FLORA OF IRELAND BEFORE THE PUBLIC,

THIS WORK

IS RESPECTFULLY INSCRIBED BY THEIR

MOST OBEDIENT HUMBLE SERVANT,

J. T. MACKAY.

INTRODUCTION.

It has been matter of complaint that the history of the natural productions of Ireland has hitherto been neglected; but when all circumstances are considered, it will appear that the censure is one of too great severity. We have no means of ascertaining to what extent a knowledge of plants was possessed in ancient times by the Celtic inhabitants of the country; but when we are told that the Irish language is rich in names of plants, and also that the names of the letters of the Irish alphabet are taken from vegetable productions, it will be admitted, that, even in periods of remote antiquity, the study of plants was not altogether neglected: nor is this at all surprising, since it is well known that the surface of Ireland formerly presented a very different aspect with regard to vegetation than its present features would lead us to suspect. Formerly Ireland might have been considered as one vast forest—a circumstance to which it was perhaps indebted for what, we are informed, was one of its most ancient names (*Innis Fiodh*, or Woody Island.) The former existence of extensive forests is not a matter of vague tradition; it is attested by the remains of pines, oaks, yews, &c. which are found in all our bogs in prodigious quantity, and by the undoubted fact that many of these forests existed until a comparatively recent period; and some of them are described by Dr. Boates, who wrote in 1652, as then existing. These forests were destroyed, partly to facilitate military operations, and subsequently, in more tranquil times, a vast quantity of timber was consumed for the smelting of iron. The remembrance of the wooded state of Ireland will be indelibly preserved in the names of many towns and districts throughout the country, proving that an abundance of trees formed a very characteristic feature of its scenery; nor is a knowledge of this circumstance calculated merely to gratify the curiosity of the antiquarian, but it is interesting to the zoologist and botanist, inasmuch as it renders probable the disappearance of several species of indigenous plants and animals which must have followed the destruction of the forests. Such birds as fed on the seeds of trees, and found protection amid their branches, must have disappeared, or have been greatly diminished in number, from a deficiency of food and shelter, and many species of insects may have been extirpated, or at least had their geographical range much circumscribed; and doubtless the same occurrences had a similar effect in limiting the range and number of such plants as flourish in the shade. It is well known that some seeds retain their vitality for many years when buried in the earth, and vegetate when called forth by favourable circumstances; we may therefore hope that as plantations increase, not only will the country reassume its former beauty, but rare plants may become more frequent, or some that have been apparently lost may again appear.

It is only in the incidental notices of historians that we obtain any knowledge of the extent of the Irish forests, or the trees they contained; and it was not till a recent period that any attempt was made to investigate the vegetable productions of the country. The first attempt towards a natural history of Ireland was by Dr. Boates, who published, in 1652, a work entitled "Ireland's Natural History," which contains interesting matter respecting the forests of Ireland, but no systematic catalogue of its indigenous plants. Dr. Boates is the only writer of any note until Threlkeld's work made its appearance in 1727; but, in the intermediate period, the Botany of Ireland was not altogether neglected. The Rev. Mr. Heaton, who resided in Dublin, communicated several rare plants to How and Merret. About this time also two eminent English Botanists, Llhwyd and

Sherrard, visited the country, and bestowed some attention on its natural history.* To Dr. Sherrard we are indebted for the first notice of *Subularia aquatica* in Ireland, which he found growing in Lough Neagh. Threlkeld's work, entitled "Synopsis Stirpium Hibernicarum," is extremely imperfect, as the characters of the plants are seldom given, and the arrangement is alphabetical; it is, however, a work written, as Dr. Pulteney observes, in a quaint and amusing style, containing many sound observations, and evincing a pretty extensive learning. In 1735 Dr. K'Eogh published a similar treatise, which is now rare, and of inferior value to that of Threlkeld.

By far the most eminent Irish naturalist of this period was Dr. Molyneaux, the earliest describer of the Fossil Elk, and who first made known the occurrence of the remains of the Fossil Elephant in Ireland. He also contributed a catalogue of rare plants, which is published in an appendix to Threlkeld's work: and it is to be regretted that so excellent an observer has not enriched our literature with more extensive publications. These observers were succeeded by the writers of the statistical surveys of the different counties; works chiefly undertaken under the auspices of the Royal Dublin Society; and which contain valuable information on statistics and agriculture, and some of them useful botanical details. I may more particularly mention the histories of Cork and Kerry by Dr. Smith, which possess very considerable merit and accuracy with regard to the localities of plants, as I found during my botanical excursions through that part of the country. In 1772 Doctor Rutty published his Natural History of the county of Dublin—a work conceived on a good plan, and containing much useful information. The next botanical works were those of Dr. Wade, who published his Flora Dubliniensis in 1794, and in 1804 his Plantæ Rariores, or Habitats of the rarer plants found by him in Ireland. These publications are not without merit, and were considered by him as only preparatory to a more extensive work (a Flora Hibernica), which he stated his intention of publishing. This work, he says, was deferred until "as soon as genuine and valuable materials could be collected for the purpose, conceiving that no work of a similar nature ought to make its appearance, or be considered genuine and valuable, unless the author has it in his power to answer for the habitats or places of growth of the different objects noticed." In 1804 the Muscologiæ Hibernicæ Spicilegium of Dawson Turner, Esq. appeared, which has the merit of being the earliest publication devoted to the mosses of Ireland—an elegantly written and accurate work, containing figures of the rarer species. About this time I was appointed assistant Botanist in Trinity College; and to the liberality of that learned body I am indebted for many facilities afforded me of investigating the Botanical productions of Ireland. In 1806 I published a catalogue of the rarer* plants of the country, which were principally observed by me during two very extensive excursions made through the southern and western counties. This catalogue appeared in the 5th volume of the Transactions of the Dublin Society.

In 1810, Mr. James Drummond, then Curator of the Cork Botanic Garden, published a catalogue of the plants of the county of Cork—a catalogue highly creditable to that acute and zealous Naturalist, who now fills the situation of Colonial Botanist at Swan River, and whose labours will, no doubt, illustrate the Botany of that interesting region.

In 1824, I gave to the Royal Irish Academy, for publication, a Catalogue of all the Phænogamous Plants and Ferns which I had then ascertained to be natives of Ireland. This catalogue was the result of twenty years observation during numerous excursions made to almost every part of the country that was likely to afford interesting matter to the Botanist. A few inaccuracies occur in this and the former Catalogue, which subsequent experience has enabled me to rectify. Whilst thus employed, I always looked forward to the publication of an Irish Flora as the final result of my investigations—an intention which I had announced in the preface to my Catalogue which appeared in 1825.

I however then contented myself with recording accurately the habitats of such plants as I had observed, or which had been communicated to me by able Botanists, being induced to postpone the publication of the work till a later period, with the view of making it as complete as possible: nor is this delay to be regretted, as I have since had an opportunity, by excursions made to Cunnamara and other parts of the country, of adding several interesting plants to our Flora; and valuable contributions have continued to be made by my friends, down to the last hour of going to press.

In 1833 a small volume appeared, entitled the *Irish Flora*, containing short descriptions of most of the Phænogamous Plants and Ferns of Ireland that were known up to that time.

The limits of a preface do not permit my entering into detail; but almost every page of the work bears evidence of the zealous assistance of my Botanical friends, and the extent of my obligations. I cannot, however, omit mentioning the late Mr. Templeton of Malone, near Belfast, who greatly contributed to our knowledge of the plants and animals of the north of Ireland. To Doctor Drummond of Belfast I am indebted for several interesting species of Algæ, thus rendering that part of the work more complete than it otherwise would have been.

Mr. David Moore, my late pupil, has supplied some of the more recent and interesting additions to our Flora, among which I may mention *Pyrola secunda*, *Rosa Sabini*, and *Carex Buxbaumii*, as the most interesting. He has distinguished himself, during the last two years, by his researches in the County of Derry, where he has been employed as Botanist to the Ordnance Survey; which, under the able superintendence of Colonel Colby and Captain Portlock, is likely to throw much light on every branch of natural history connected with Ireland.

The first part of the work contains the Phænogamous, or Flowering Plants, Ferns, and Characeæ, arranged according to the natural method, on the plan adopted by Professor De Candolle in his Theorie Elementaire, 2d ed., and Professor Lindley in his Synopsis of the British Flora. I have been induced to adopt the natural system, not only because it is the method followed by Dr. Allman, the learned Professor of Botany in Trinity College, and which, although more difficult to beginners, is best calculated to give the student an accurate knowledge of the science; but as the Linnæan method enables us to ascertain the genus of a plant with greater facility, a Synopsis of the Genera according to that system has therefore been prefixed; thus, it is hoped, combining to a considerable extent the advantages of both methods.

In describing the genera and species in the body of the work, I have adopted pretty much the characters of Sir W. J. Hooker, as given by him in his excellent British Flora, it being the book I principally consulted in the examination of my specimens, from which I have also taken the etymologies of the generic names.

The second and not least valuable part of the work contains the Orders, Musci, Hepaticæ, and Lichenes, by Doctor Taylor, (the well-known coadjutor of Sir W. J. Hooker in the Muscologia Britannica,) who of all the Botanists of Ireland, was best qualified for the task. It will be seen that he has added a new genus *(Hydrophyla)* in the order Hepaticæ, and in the order Lichenes a good many hitherto undescribed species, six of which appear in the Addenda.

W. H. Harvey, Esq. the well-known Algologist, (before his departure to the Cape of Good Hope,) kindly undertook to describe the Algæ. This he accomplished from the examination of a full collection in my possession, chiefly formed by the late amiable and accomplished Miss Hutchins, a lady who for many years was unremitting in her investigation of the Botany of the south of Ireland. To these he has added his own numerous discoveries, and those of other Botanists, whose names are mentioned; and since his departure I have been fortunate enough to add nine species new to Ireland, communicated by several botanical friends, as will appear in that portion of the work.

Dublin, 10th May, 1836.

TABLE OF LINNÆAN ARTIFICIAL CLASSES AND ORDERS.

Div. I. *Plants with conspicuous flowers.* Phanerogamia.

A. *Stamens and pistils in the same flower.*

* *Stamens free and equal.*

Cl. 1. Monandria, with 1 stamen.
2. Diandria, 2 stamens.
3. Triandria, 3 stamens.
4. Tetrandria, 4 stamens.
5. Pentandria, 5 stamens.
6. Hexandria, 6 stamens.
7. Heptandria, 7 stamens.
8. Octandria, 8 stamens.
9. Enneandria, 9 stamens.
10. Decandria, 10 stamens.
11. Dodecandria, 11 to 19 stamens.
12. Icosandria, 20 or more stamens, perigynous or inserted on the calyx.
13. Polyandria, 20 or more stamens, hypogynous or inserted on the receptacle.

Orders.—In the first 13 classes the orders depend solely on the number of pistils, and they are named—*Monogynia, Digynia, Trigynia, Tetragynia, Pentagynia, Hexagynia, Heptagynia, Octagynia, Enneagynia, Decagynia, Dodecagynia,* and *Polygynia.*

** *Stamens free, unequal.*

14. Didynamia, 4 stamens, 2 longer than the others.

Two orders. 1. *Gymnospermia,* the seeds naked. 2. *Angiospermia,* the seeds enclosed in a pericarp.

15. Tetradynamia, 6 stamens, 4 longer than the others.

Two orders. 1. *Siliculosa,* fruit a silicle or pouch. 2. *Siliquosa,* fruit a long pod or silique.

*** *Filaments united.*

16. Monadelphia, filaments forming one set.
17. Diadelphia, filaments forming 2 sets.
18. Polyadelphia, filaments forming more than 2 sets.

Orders depend upon the number of stamens, and have the same names as the first 13 classes.

**** *Anthers united.*

19. Syngenesia, 5 stamens, the anthers united (compound flowers.)

Five orders. 1. *Polygamia Æqualis,* florets all perfect. 2. *P. Superflua,* disk florets perfect, ray pistiliferous. 3. *P. Frustranea,* disk perfect, rays neutral. 4. *P. Necessaria,* disk without stamens, rays with a pistil. 5. *P. Segregata,* with a perianth to each floret.

***** *Anthers united to the pistil.*

20. Gynandria.

Orders named according to the number of stamens, as *Monandria,* &c.

B. *Stamens and pistils in different flowers.*

21. Monœcia, stamens and pistils on the same individual.
22. Diœcia, stamens and pistils on different individuals.

Orders named according to the number of stamens, except where there is a union of the filaments; then named *Monadelphia,* &c.

23. Polygamia, perfect and unisexual flowers either on the same or different individuals.

Three orders. *Monœcia, Diœcia,* and *Triœcia.*

Div. II. *Plants with inconspicuous flowers.* Cryptogamia.

24. Cryptogamia, neither stamens nor pistils.

Six orders, viz. 1. *Filices.* 2. *Musci.* 3. *Hepaticæ.* 4. *Lichenes.* 5. *Algæ.* 6. *Fungi.*

SYNOPSIS OF GENERA, (IN PART FIRST) ACCORDING TO THE LINNÆAN SYSTEM.

Class I. MONANDRIA. *Stamen* 1.

Order I. MONOGYNIA. *Pistil* 1.

* *Seed one.*

SALICORNIA. *Calyx* tumid, undivided. *Corolla* none. *Stam.* 1 or 2. *Seed* invested with the calyx. *Chenopodeæ*, p. 226.

HIPPURIS. *Cal.* a slight border. *Cor.* none. *Seed* inferior, naked. *Stigma* 1. *Halorageæ*, p. 113.

(See Valeriana *rubra* in Cl. iii.; Alchemilla *arv.* in Cl. iv.; Zostera in Cl. xxi.; Chara in Cl. xxiv.)

Order II. DIGYNIA. *Pistils* 2.

(See Callitriche in Cl. xxi.)

Class II. DIANDRIA. *Stamens* 2.

Order I. MONOGYNIA. *Pistil* 1.

* *Flowers inferior, monopetalous, regular.*

LIGUSTRUM. *Cor.* 4-cleft. *Berry* with four seeds. *Oleineæ*, p. 178.

FRAXINUS. *Cor.* none, or deeply 4-cleft. *Capsule* compressed, with 1 or 2 seeds. Some flowers without stamens. *Oleineæ*, p. 178.

* * *Fl. inferior, monopetalous, irregular, with seed-vessels.*

VERONICA. *Cor.* wheel-shaped, deeply 4-cleft. *Caps.* of 2 cells. *Scrophularineæ*, p. 198.

PINGUICULA. *Cor.* ringent, spurred. *Caps.* of 1 cell. *Cal.* 5-cleft. *Lentibulariæ*, p. 196.

UTRICULARIA. *Cor.* ringent, spurred. *Caps.* of 1 cell. *Cal.* of 2 leaves. *Lentibulariæ*, p. 197.

* * * *Fl. inferior, monopetalous, irregular, with naked seeds.*

LYCOPUS. *Cor.* nearly equal. *Stamens* distant, simple. *Seeds* abrupt. *Labiatæ*, p. 209.

SALVIA. *Cor.* ringent. *Stam.* with a lateral stalk. *Labiatæ*, p. 209.

* * * * *Fl. superior.*

CIRCÆA. *Cor.* of 2 petals. *Cal.* in 2 segments. *Caps.* of 2 cells. *Seeds* solitary. *Circæaceæ*, p. 111.

* * * * * *Fl. apetalous, or with 4 petals.*

LEMNA. *Cor.* none. *Cal.* of one leaf. *Caps.* with 1 seed. *Pistiaceæ*, p. 269.

CLADIUM. *Cor.* none. *Glumes* chaffy, sheathing; the outer ones empty. *Drupe* without bristles at the base. *Cyperaceæ*, p. 324.

(See *Salicornia* in Cl. i. *Schœnus*, Cl. iii. *Carex*, Cl. xxi. *Lepidium* and *Coronopus*, Cl. xv.)

Order II. DIGYNIA. *Pistils* 2.

ANTHOXANTHUM. *Cal.* glume of 2 valves, 1-flowered. *Cor.* glume of 2 valves, awned. *Seed* 1. *Gramineæ*, p. 317.

Class III. TRIANDRIA. *Stamens* 3.

Order I. MONOGYNIA. *Pistil* 1.

* *Flowers superior.*

VALERIANA. *Cor.* 5-cleft, protuberant at the base. *Seed* 1, with a feathery radiating crown. *Valerianeæ*, p. 140.

FEDIA. *Cor.* 5-cleft, protuberant at the base. *Caps.* crowned with the toothed calyx, without valves, of 1—3 fertile cells. *Seeds* solitary. *Valerianeæ*, p. 139.

CROCUS. *Cor.* in 6 deep equal segments; tube longer than the limb. *Stigmas* folded. *Irideæ*, p. 274.

IRIS. *Cor.* in 6 deep unequal segments, alternately reflexed. *Stigmas* 2-lipped, like petals. *Irideæ*, p. 273.

* * *Fl. inferior, chaffy.* *Seed* 1.

SCHŒNUS. *Cor.* none. *Spike* of very few flowers. *Glumes* 2-ranked, with many smaller, empty, external ones. *Style* simple at the base, deciduous. *Cyperaceæ*, p. 320.

RHYNCHOSPORA. *Cor.* none. *Spike* of very few flowers. *Glumes* imbricated all round, with many smaller, empty, external ones. *Seed* beaked with the dilated, hardened, permanent base of the style. *Cyperaceæ*, p. 319.

SCIRPUS. *Cor.* none. *Glumes* imbricated all round, uniform, concave, expanded. *Style* simple at the base, deciduous. *Cyperaceæ*, p. 322.

BLYSMUS. See p. 319.

ELEOCHARIS. *Cor.* none. *Glumes* imbricated all round, uniform, expanded. *Seed* crowned and articulated with the dilated hardened base of the style. *Cyperaceæ*, p. 320.

ERIOPHORUM. *Cor.* none. *Glumes* imbricated all round, uniform, expanded. *Seed* subtended by numerous very long hairs. *Cyperaceæ*, p. 323.

NARDUS. *Cor.* of 2 valves. *Calyx* none. *Gramineæ*, p. 318.

(Some *Junci;* see in Cl. vi.

Order II. DIGYNIA. *Pistils* 2.

True Grasses. *Gramineæ.*

* *Flowers dispersed. Cal. of 2 or 3 valves, with a solitary floret.*

ALOPECURUS. *Cal.* of 2 valves. *Cor.* of 1 valve; simple at the summit; awned at the base. *Styles* combined. p. 295.

PHALARIS. *Cal.* of 2 close, parallel valves, concealing the double *corolla* of 3 or 4 valves; 2 innermost downy, subsequently hardened, investing the *seed.* p. 295.

AMMOPHILA. *Panicle* spiked. *Cal.* of 2 nearly equal, keeled valves, longer than the *corolla*, surrounded at the base by a tuft of hairs. p. 296.

PHLEUM. *Cal.* of 2 close, parallel, pointed valves, concealing the *cor.* of 2 awnless valves. *Seed* loose. p. 296.

MILIUM. *Cal.* of 2 tumid, close valves, enclosing the *cor.* of 2 valves. *Seed* coated with the hardened *corolla.* p. 297.

Calamagrostis. *Panicle* loose. *Cal.* of 2 valves, longer than the two valves of the *corolla.* p. 297.

Agrostis. *Cal.* of 2 acute valves, shorter than the *cor.* which is membranous, tufted with hairs at the base, unchanged. *Seed* loose. p. 298.

* * *Fl. dispersed. Cal. of 2 valves, containing 2 or 3 florets.*

Catabrosa. *Panicle* spreading. *Cal.* of 2 valves, membranaceous, very obtuse, much shortet than the spikelets, 2 or 3-flowered, often with a fourth imperfect floret. *Cor.* 2-valved, coriaceous, membranous only at the extremity, ribbed, truncated, awnless, erose, nearly equal. p 299.

Aira. *Florets* 2, without any intermediate rudiment. *Seed* loose. *Cor.* unchanged. p. 299.

Melica. *Florets* 1 or 2, with the rudiments of 1 or 2 intermediate ones. *Seed* coated with the hardened *cor.* p. 300.

Holcus. One *floret* barren. *Cor.* awned. *Seed* coated with the hardened *corolla. Cal.* keeled. p. 301.

Arrhenatherum. *Panicle* lax. *Cal.* of 2 valves, 2-flowered; lowermost floret with stamens only, and a long twisted awn above the base, upper one perfect, with a short straight bristle below the point. p. 302.

Sesleria. *Florets* 2 or 3, all perfect. Outer valve of the *cor.* toothed; inner cloven. *Seed* loose. *Styles* combined. p. 302.

* * * *Fl. dispersed. Cal. containing many florets.*

Poa. *Cor.* awnless, compressed, keeled, ovate, acute. *Seed* loose, elliptic-oblong. p. 302.

Triodia. *Cor.* orbicular, expanded, obscurely ribbed, deeply cloven, with an intermediate point; both valves concave. *Seed* loose, depressed. p. 306.

Briza. *Cor.* awnless, tumid, expanded, concave, without a keel. *Seed* depressed, united to the *corolla.* p. 306.

Dactylis. *Cor.* awned at the summit, lanceolate, keeled, compressed; inner valve folded, 2-ribbed. *Seed* loose, oblong. *Cal.* compressed, taper-pointed, unequal. p. 307.

Cynosurus. *Cor.* awned at the summit, lanceolate, keeled, concave; inner valve flat, 2-ribbed. *Seed* loose, elliptic-oblong. *Cal.* awned, equal. *Spikelets* in pairs; 1 entirely neuter. p. 307.

Festuca. *Cor.* awned at the summit, or pointed, keeled, nearly cylindrical, concave; inner valve flat, 2-ribbed, downy at the ribs. *Seed* loose, oblong. *Cal.* concave, acute, very unequal. p. 307.

Bromus. *Cor.* awned at the back, cloven, concave; inner valve flat, 2-ribbed, bristly at the ribs. *Seed* elliptic-oblong, united to the inner valve. p. 310.

Avena. *Cor.* awned at the back, cloven, nearly cylindrieal; inner valve flat, ovate. *Seed* elliptic-oblong, united to the hard outer valve. p. 312.

Arundo. *Cor.* surrounded with long permanent hairs. *Florets* 1 or many. p. 313.

* * * * *Fl. aggregate, on a jointed, or toothed, common stalk, with lateral excavations.*

Elymus. *Cal.* of 2 parallel valves, aggregate, with two or more *florets.* p. 313.

Hordeum. *Cal.* of 2 parallel valves, aggregate, ternate, with one *floret.* Central flower only perfect. p. 314.

Triticum. *Cal.* of 2 transverse opposite valves, solitary, many-flowered. p. 315.

BRACHYPODIUM. *Spikelets* alternate, remote, cylindrical-compressed. *Cal.* 2-valved, many-flowered; valves opposite, transverse, unequal. *Cor.* 2-valved, the *valves* lanceolate; *ext.* one generally awned at the extremity; *int.* retuse. p. 316.

LOLIUM. *Cal.* of 1 principal valve, opposite to the stalk, fixed, many-flowered. p. 316.

ROTTBOLLIA. *Cal.* of 2 parallel, sometimes combined valves, opposite to the stalk, imperfectly 2-flowered. p. 317.

Order III. TRIGYNIA. *Pistils* 3.

MONTIA. *Cal.* of 2 leaves. *Cor.* monopetalous. *Caps.* with 3 valves and 3 *seeds*. *Portulaceæ*, p. 59.

Class IV. TETRANDRIA. *Stamens 4, equal.*

Order I. MONOGYNIA. *Pistil* 1.

* *Fl. monopetalous, superior, single-seeded.*

DIPSACUS. *Common Cal.* of many leaves. *Proper Cal.* single, superior, of 1 leaf, cup-shaped, crowning the seed. *Dipsaceæ*, p. 141.

KNAUTIA. *Involucre* many-leaved. *Cal.* double; *ext.* minute; *int.* cup-shaped. *Fruit* upon a short stalk, compressed, with 4 pores on depressed points. *Dipsaceæ*, p. 142.

SCABIOSA. *Com. Cal.* of many leaves. *Prop. Cal.* double, superior, crowning the seed. *Dipsaceæ*, p. 141.

* * *Fl. monopetalous, superior, 2-seeded.*

RUBIA. *Cor.* bell-shaped. *Fruit* pulpy. *Stellatæ*, p. 132.

GALIUM. *Cor.* flat. *Fruit* dry. *Stellatæ*, p. 129.

ASPERULA. *Cor.* tubular. *Fruit* without a crown. *Stellatæ*, p. 132.

SHERARDIA. *Cor.* tubular. *Fruit* crowned with the calyx, each *seed* with 3 teeth. *Stellatæ*, p. 132.

* * * *Fl. monopetalous, inferior.*

EXACUM. *Cor.* salver-shaped, spreading. *Stam.* shorter than the limb. *Caps.* with 2 valves, separating at the top, many-seeded. *Gentianeæ*, p. 185.

PLANTAGO. *Cor.* reflexed. *Stam.* very long. *Caps.* bursting all round, of 2 or 4 cells. *Plantagineæ*, p. 175.

CENTUNCULUS. *Cor.* tubular, spreading. *Stam.* within the tube. *Caps.* bursting all round, of 1 cell. *Primulaceæ*, p. 192.

Some Gentianeæ.

* * * * *Petals* 4.

CORNUS. *Nect.* 0. *Drupe* inferior. *Nut* of 2 cells. *Caprifoliaceæ*, p. 135.

(See *Euonymus* in Cl. V. *Cardamine* and *Coronopus*, in Cl. xv.)

* * * * * *Petals wanting.*

PARIETARIA. *Cal.* 4-cleft, inferior. *Stam.* elastic. *Seed* invested with the elongated calyx. Some flowers without stamens, their *calyx* remaining unaltered. *Utioeæ*, p. 232.

Alchemilla. *Cal.* 8-cleft, inferior. *Seed* 1, or 2, naked. *Rosaceæ,* p. 105.

Order II. Digynia. 2 *styles.*

(See *Alchemilla* in Ord. II. Some *Gentianæ* and *Cuscuta* in Cl. V.)

Order III. Tetragynia. *Pistils, or Stigmas,* 4.

Ilex. *Cor.* wheel-shaped, of 1 or 4 petals. *Berry* with 4 seeds. *Styles* 0. Some *fl.* barren. *Ilicineæ,* p. 71.

Sagina. *Pet.* 4. *Caps.* of 1 cell, and 4 valves. *Cal.* 4-leaved. *Caryophylleæ,* p. 45.

Radiola. *Pet.* 4. *Caps.* of 8 cells, and 8 valves. *Cal.* of one leaf, in 12 segments. *Lineæ,* p. 52.

Potamogeton. *Pet.* 4. *Cal.* 0. *Seeds* 4, naked, sessile. *Fluviales,* p. 264.

Ruppia. *Pet.* 0. *Cal.* 0. *Seeds* 4, stalked. *Fluviales,* p. 267.

Class V. Pentandria. *Stamens* 5.

Order I. Monogynia. *Pistil* 1.

* *Flowers monopetalous, inferior, with* 2 *or* 4 *naked seeds.* (Asperifoliæ, *Linn.*)

Echium. Throat of the *corolla* dilated, naked; limb irregular. *Stigma* deeply cloven. *Boragineæ,* p. 167.

Lithospermum. *Cor.* naked in the throat, funnel-shaped. *Cal.* in 5 deep segments. *Boragineæ,* p. 168.

Symphytum. *Cor.* closed with awl-shaped converging valves; limb bell-shaped. *Boragineæ,* p. 168.

Borago. *Cor.* closed with awl-shaped or notched valves; limb wheel-shaped. *Boragineæ,* p. 169.

Lycopsis. *Cor.* closed with concave obtuse valves, funnel-shaped, with a doubly bent tube. *Seeds* concave at the base. *Boragineæ,* p. 169.

Anchusa. *Cor.* closed with concave obtuse valves, funnel-shaped; tube straight, tumid below. *Seeds* concave at the base. *Boragineæ,* p. 169.

Myosotis. *Cor.* half closed with rounded valves, salver-shaped; lobes obtuse. *Seeds* perforated at the base, borne by the calyx. *Boragineæ,* p. 170.

Cynoglossum. *Cor.* half closed with rounded valves, funnel-shaped. *Seeds* depressed, imperforate, borne by a central column. *Boragineæ,* p. 171.

** *Fl. monopetalous, inferior, with numerous covered seeds.*

Anagallis. *Caps.* of one cell, bursting all round. *Cor.* wheel-shaped. *Stam.* hairy. *Primulaceæ,* p. 194.

Lysimachia. *Caps.* of 1 cell, with 10 valves. *Cor.* wheel-shaped. *Primulaceæ,* p. 193.

Primula. *Caps.* of 1 cell, opening with 10 teeth. *Cor.* salver-shaped; tube cylindrical, throat open. *Stigma* globular. *Primulaceæ,* p. 192.

Hottonia. *Caps.* of 1 cell, with 5 teeth. *Cor.* salver-shaped. *Stam.* from the margin of the tube. *Stigma* globular. *Cal.* in 5 deep segments. *Primulaceæ,* p. 194.

MENYANTHES. *Caps.* of 1 cell. *Cor.* hairy. *Stigma* divided. *Gentianeæ,* p. 188.

ERYTHRÆA. *Caps.* of 2 incomplete cells. *Cor.* salver-shaped. *Anth.* finally spiral. *Gentianeæ,* p. 186.

DATURA. *Caps.* of 2 cells, and 4 valves. *Cor.* funnel-shaped. *Cal.* deciduous. *Solaneæ,* p. 189.

HYOSCYAMUS. *Caps.* of 2 cells, with a lid. *Cor.* funnel-shaped. *Stigma* capitate. *Solaneæ,* p. 190.

VILLARSIA. *Cal.* 5 parted. *Cor.* rotate, the limb often ciliated. *Caps.* 1-celled. *Seeds* parietal. *Gentianeæ,* p. 188.

VERBASCUM. *Caps.* of 2 cells. *Cor.* wheel-shaped, irregular. *Stigma* obtuse. *Stam.* declining. *Solaneæ,* p. 190.

CONVOLVULUS. *Caps.* of 1 or 3 cells, with 2 *seeds* in each. *Cor.* bell-shaped, plaited, *Stigmas* 2. *Convolvulaceæ,* p. 172.

POLEMONIUM. *Caps.* of 3 cells. *Cor.* deeply 5-cleft; tube closed by 5 valves. *Stam.* between the valves, opposite to the segments. *Polemoniaceæ,* p. 174.

VINCA. *Follicles* 2, erect. *Cor.* salver-shaped, oblique. *Seeds* simple. *Apocyneæ,* p. 184.

SOLANUM. *Berry* of 2 cells. *Cor.* wheel-shaped. *Anth.* with 2 pores. *Solaneæ,* p. 191.

ATROPA. *Berry* of 2 cells. *Cor.* bell-shaped. *Stam.* distant, incurved. *Anth.* heart-shaped. *Solaneæ,* p. 191.

* * * *Fl. monopetalous, superior.*

SAMOLUS. *Caps.* of 1 cell, with 5 recurved valves. *Cor.* funnel-shaped, 5 cleft, with intermediate scales. *Primulaceæ,* p. 195.

JASIONE. *Caps.* half 2-celled, opening at the top. *Cor.* wheel-shaped, in 5 deep segments. *Stigma* club-shaped. *Anth.* combined at the base. *Lobeliaceæ,* p. 138.

LOBELIA. *Caps.* of 2 or 3 cells. *Cor.* irregular, split lengthwise. *Stigma* capitate, hairy. *Lobeliaceæ,* p. 139.

CAMPANULA. *Caps.* of 2 or 3 cells, with torn fissures at the base. *Cor.* bell-shaped. *Stigma* 2- or 3-cleft, revolute. *Campanulaceæ,* p. 137.

LONICERA. *Berry* of 1 or more cells, with many seeds. *Cor.* irregular, *Caprifoliaceæ,* p. 133.

* * * * *Fl. of* 5, *or* 4 *petals, inferior.*

RHAMNUS. *Berry* of several cells. *Cal.* funnel-shaped, bearing the *petals.* *Rhamneæ,* p. 71.

EUONYMUS. *Caps.* of 4 or 5 cells. *Seeds* with a fleshy tunic. *Cal.* flat. *Celastrineæ,* p. 72.

VIOLA. *Caps.* of 1 cell and 3 valves. *Cal.* of 5 leaves, extended at the base. *Cor.* irregular, spurred. *Violaceæ,* p. 31.

* * * * * *Fl. of* 5 *petals, superior.*

RIBES. *Berry* with many *seeds.* *Cal.* bearing the *petals.* *Style* divided. *Grossulaceæ,* p. 108.

HEDERA. *Berry* with 3—5 *seeds.* *Cal.* surrounding the germen. *Style* simple. *Pet.* broadest at the base. *Caprifoliaceæ,* p. 135.

* * * * * * *Petals wanting.*

Glaux. *Caps.* superior, with 5 *seeds.* *Cal.* coloured, of 1 leaf. *Primulaceæ*, p. 192.

Order II. Digynia. *Pistils* 2.

* *Fl. monopetalous, inferior.*

Gentiana. *Caps.* of 1 cell. *Cor.* tubular at the base, destitute of nectariferous pores. *Gentianeæ*, p. 187.

Cuscuta. *Caps.* of 2 cells, bursting all round. *Cor.* bell-shaped. *Convolvulaceæ*, p. 173.

* * *Petals wanting. Seed solitary.*

Chenopodium. *Seed* lenticular, tunicated, superior. *Chenopodeæ*, p. 227.

Beta. *Seed* kidney-shaped, imbedded in the fleshy *calyx.* *Chenopodeæ*, p. 229.

Salsola. *Caps.* closed, imbedded in the fleshy *calyx.* *Seed* with a spiral *embryo.* *Chenopodeæ*, p. 226.

Ulmus. *Caps.* closed, membranous, compressed, bordered, superior. *Ulmaceæ*, p. 240.

* * * *Fl. of 5 petals, superior. Seeds 2. Umbellatæ.*

Obs. The genera of this division form the Natural Order *Umbelliferæ*. See p. 113—129.

Order III. Trigynia. *Pistils* 3.

* *Fl. superior.*

Viburnum. *Cor.* 5-cleft. *Berry* with 1 *seed.* *Caprifoliaceæ*, p. 134.

Sambucus. *Cor.* 5-cleft. *Berry* with 3 *seeds.* *Caprifoliaceæ*, p. 134.

Order IV. Tetragynia. *Pistils* 4.

Parnassia. *Nectaries* fringed with bristles, bearing globes. *Caps.* of 4 valves. *Saxifrageæ*, p. 64.

Order V. Pentagynia. *Pistils* 5.

Linum. *Pet.* 5. *Capsule* of 10 cells. *Lineæ*, p. 51.

Statice. *Pet.* 5. *Seed* 1, clothed with the base of the funnel-shaped calyx. *Plumbagineæ*, p. 176.

(See *Cerastium* and *Spergula* in Cl. x.)

Order VI. Hexagynia. *Pistils* 6.

Drosera. *Pet.* 5. *Caps.* of 3 valves, with many *seeds.* *Droseraceæ*, p. 34.

Class VI. Hexandria. *Stamens 6, each 3 equal.*

Order I. Monogynia. *Pistil* 1.

* *Fl. with both calyx and corolla.*

Berberis. *Cor.* of 6 *petals.* *Cal.* of 6 leaves, inferior. *Berry* with 2 *seeds.* *Berberideæ*, p. 11.

Peplis. *Cor.* of 6 *petals.* *Cal.* with 6 deep segments, and 6 intermediate plaits. *Caps.* of 2 cells. *Salicariæ*, p. 69.

(See *Lythrum* in Cl. xii.)

* * *Fl. without a calyx, superior.*

Galanthus. *Cor.* sup. of 6 *petals*, 3 innermost shortest, abrupt, notched. *Amaryllideæ*, p. 283.

Narcissus. *Cor.* sup. of 6 *petals*, attached to a bell-shaped nectary, which conceals the stamens. *Amaryllideæ*, p. 283.

* * * *Fl. without a calyx, inferior.*

Convallaria. *Cor.* inferior, deciduous; *limb* in 6 segments. *Berry* of 3 cells. *Stigmas* triangular. *Smilaceæ*, p. 287.

Hyacinthus. *Cor.* inf. deciduous; *limb* in 6 segments; tube swelling. *Stam.* uniform. *Caps.* of 3 cells. *Seeds* globose. *Asphodeleæ*, p. 286.

Allium. *Cor.* inf. of 6 ovate *petals.* *Stam.* awl-shaped, flattened. *Stigma* acute. *Seeds* angular. *Asphodeleæ*, p. 285.

Narthecium. *Cor.* inf. of 6 linear-lanceolate *pet.* spreading. *Stam.* woolly. *Seeds* tunicated, tapering at each end. *Junceæ*, p. 293.

Scilla. *Cor.* inf. of 6 ovate-oblong *petals*, spreading, deciduous. *Stam.* all thread-shaped. *Asphodeleæ*, p. 286.

* * * * *Fl. without petals.*

Juncus. *Cal.* of 6 leaves. *Caps.* of 3 cells and 3 valves. *Seeds* numerous, horizontal. *Junceæ*, p. 289.

Luzula. *Cal.* of 6 leaves. *Caps.* of 1 cell and 3 valves. *Seeds* 3, erect. *Junceæ*, p. 293.

(See *Peplis* in Ord. I. *Polygonum* in Cl. viii.)

Order II. Digynia. *Pistils* 2.

Oxyria. *Cal.* of 2 leaves. *Pet.* 2. *Seed* 1, compressed, winged. *Polygoneæ*, p. 223.

Order III. Trigynia. *Pistils, or Stigmas*, 3.

Colchicum. *Cal.* none. *Cor.* of 1 *petal*, tubular. *Caps.* 3, inflated. *Seeds* numerous. *Melanthaceæ*, p. 282.

Triglochin. *Cal.* of 3 leaves. *Pet.* 3. *Capsule* opening at the base, with 3 valves. *Juncagineæ*, p. 270.

Rumex. *Cal.* of 3 leaves. *Pet.* 3. *Seed* 1, naked, triangular. *Polygoneæ*, p. 221.

(See *Elatine* in Cl. viii.)

Order IV. Polygynia. *Pistils numerous.*

Alisma. *Cal.* of 3 leaves. *Pet.* 3. *Caps.* 6 or more, aggregate. *Seeds* 1 or 2. *Alismaceæ*, p. 271.

Class VII. Heptandria. *Stamens* 7.

Trientalis, the only British genus in this class, has not yet been observed in Ireland.

Class VIII. OCTANDRIA. *Stam.* 8.

Order I. MONOGYNIA. *Pistil* 1.

* *Fl. complete.*

ACER. *Pet.* 5. *Cal.* 5-cleft, inferior. *Caps.* winged. *Seeds* 1 or 2. *Acerineæ*, p. 54.

EPILOBIUM. *Pet.* 4. *Cal.* 4-cleft, superior. *Caps.* of 4 cells. *Seeds* bearded. *Onagrariæ*, p. 109.

CHLORA. *Cor.* in 8, or 6, deep segments. *Cal.* inferior, of as many leaves. *Caps.* of 1 cell. *Gentianeæ*, p. 188.

VACCINIUM. *Cor.* of 1 petal. *Cal.* 4-cleft. *Berry* inferior. *Vaccinieæ*, p. 136.

MENZIESIA. *Cor.* of 1 petal. *Cal.* of one leaf. *Caps.* superior; partitions double, from the margins of the valves. *Ericeæ*, p. 180.

ERICA. *Cor.* of 1 petal. *Cal.* of 4 leaves. *Caps.* superior; partitions simple, from the centre of each valve. *Ericeæ*, p. 180.

CALLUNA. *Cor.* of 1 petal. *Cal.* double; each of 4 leaves. *Caps.* superior; partitions from the column, alternate with the valves. *Ericeæ*, p. 179.

(See *Monotropa* in Cl. x.)

DIGYNIA. *Styles* 2.

(See *Polygonum* in Ord. ii., *Chrysosplenium* and *Scleranthus* in Cl. x.)

Order II. TRIGYNIA. *Pistils* 3.

POLYGONUM. *Cal.* coloured, in several deep segments, inferior. *Cor.* 0. *Seed* 1, naked. *Polygoneæ*, p. 223.

Order III. TETRAGYNIA. *Pistils* 4.

ADOXA. *Cal.* half-inferior. *Cor.* in 4 or 5 segments. *Berry* invested with the calyx. *Seeds* 4, bordered. *Saxifrageæ*, p. 63.

PARIS. *Cal.* of 4 leaves. *Pet.* 4. *Berry* superior. *Seeds* numerous, globose. *Smilaceæ*, p. 287.

ELATINE. *Cal.* of 4 leaves. *Pet.* 4. *Caps.* superior, of 4 cells; partitions from the column. *Seeds* oblong. *Caryophylleæ*, p. 45.

(See *Sagina* Cl. iv.)

Class IX. ENNEANDRIA. *Stamens* 9.

Order I. HEXAGYNIA. *Pistils* 6.

BUTOMUS. *Cal.* 0. *Pet.* 6. *Caps.* 6, with many *seeds*. *Butomeæ*, p. 288.

Class X. DECANDRIA. *Stamens* 10.

Order I. MONOGYNIA. *Pistil* 1.

* *Fl. polypetalous.*

MONOTROPA. *Pet.* 10, or 8; 5, or 4, outermost protuberant at the base. *Anthers* of 1 cell, and 2 valves. *Pyrolaceæ*, p. 184.

Pyrola. *Pet.* 5. *Anth.* of 2 cells, with 2 pores. *Pyrolaceæ,* p. 183.

* * *Fl. monopetalous, equal.*

Andromeda. *Cor.* ovate, or bell-shaped. *Caps.* of 5 cells. *Ericeæ,* p. 179.

Arbutus. *Cor.* ovate, transparent at the base. *Berry* of 5 cells. *Ericeæ,* p. 182.

(See *Vaccinium* 1. Cl. viii.)

Order II. Digynia. *Pistils* 2.

Scleranthus. *Cor.* 0. *Cal.* of 1 leaf. *Seeds* 2. *Scleranthеæ,* p. 231.

Chrysosplenium. *Cor.* 0. *Cal.* coloured. *Caps.* with 2 beaks. *Seeds* numerous. *Saxifrageæ,* p. 63.

Saxifraga. *Pet.* 5. *Cal.* in 5 deep segments. *Caps.* with 2 beaks. *Seeds* numerous. *Saxifrageæ,* p. 64.

Saponaria. *Pet.* 5. *Cal.* tubular, without angles, of 1 leaf, naked at the base. *Caps.* oblong. *Caryophylleæ,* p. 41.

Dianthus. *Pet.* 5. *Cal.* tubular, of 1 leaf, with scales at the base. *Caps.* oblong. *Caryophylleæ,* p. 40.

Order III. Trigynia. *Pistils* 3.

Arenaria. *Caps.* of 1 cell. *Pet.* undivided, spreading. *Caryophylleæ,* p. 46.

Stellaria. *Caps.* of 1 cell. *Pet.* deeply cloven, spreading. *Caryophylleæ,* p. 49.

Silene. *Caps.* of 3 incomplete cells. *Pet.* with claws; limb cloven. *Cal.* of 1 leaf. *Caryophylleæ,* p. 41.

(See *Polygonum* in Cl. viii.)

Order IV. Pentagynia. *Pistils* 5:

Cotyledon. *Caps.* 5, each with a scale at the base. *Cor.* of 1 petal. *Crassulaceæ,* p. 60.

Sedum. *Caps.* 5, each with a scale at the base. *Cor.* of 5 petals. *Crassulaceæ,* p. 160.

Oxalis. *Caps.* of 5 cells, angular. *Seeds* 2, tunicated. *Pet.* connected at the base. *Oxalideæ,* p. 58.

Lychnis. *Caps.* of 5 cells, or of 1, with many *seeds.* *Cal.* tubular, membranous. *Caryophylleæ,* p. 43.

Agrostemma. *Caps.* of 1 cell. *Cal.* tubular, coriaceous. *Caryophylleæ,* p. 43.

Cerastium. *Caps.* of 1 cell. *Cal.* of 5 leaves. *Pet.* cloven. *Caryophylleæ,* p. 48.

Spergula. *Caps.* of 1 cell. *Cal.* of 5 leaves. *Pet.* undivided. *Caryophylleæ.*

(See *Silene* and *Stellaria* in Order iii.—*Adoxa* in Cl. viii.)

Class XI. DODECANDRIA. *Stamens* 12—20.

Order I. MONOGYNIA. *Pistil* 1.

LYTHRUM. *Pet.* 6. *Cal.* 12-cleft, inferior. *Salicariæ*, p. 70.

Order II. DIGYNIA. *Pistils* 2.

AGRIMONIA. *Pet.* 5, borne by the calyx. *Seeds* in the bottom of the hardened calyx. *Rosaceæ*, p. 95.

Order III. TRIGYNIA. *Pistils* 3.

RESEDA. *Pet.* in many segments. *Caps.* of 1 cell, gaping. *Resedaceæ*, p. 234.

(See *Euphorbia* in Cl. xxi.)

(TETRAGYNIA, 4 *Styles*.
See *Tormentilla* in Cl. xii.)

Order IV. DODECAGYNIA. *Pistils* 12.

SEMPERVIVUM. *Pet.* 12. *Cal.* in 12 deep segments. *Caps.* 12. *Crassulaceæ*, p. 62.

Class XII. ICOSANDRIA. *Stamens* 20 *or more, from the rim of the calyx.*

Order I. MONOGYNIA. *Pistil* 1.

PRUNUS. *Cal.* inferior, 5-cleft. *Pet.* 5. *Nut* of the *drupe* with slightly prominent seams. *Rosaceæ*, p. 86.

(See *Cratægus* in Ord. Pentagynia.)

Order II. PENTAGYNIA. *Pistils* 2—5.

CRATÆGUS. *Pomaceæ.* See p. 107.

PYRUS. *Cal.* superior, 5-cleft. *Pet.* 5. *Apple* with 2—5 membranous 2-valved capsules. *Seeds* 2. *Pomaceæ*, p. 107.

SPIRÆA. *Cal.* inferior, 5-cleft. *Pet.* 5. *Caps.* of 2 membranous valves. *Seeds* numerous. *Rosaceæ*, p. 86.

Order III. POLYGYNIA. *Pistils numerous.*

ROSA. *Cal.* 5-cleft; tube finally pulpy, lined with hairs, and with numerous bristly seeds. *Rosaceæ*, p. 95.

RUBUS. *Cal.* 5-cleft. *Berry* superior, compound, deciduous. *Recept.* spongy, permanent. *Rosaceæ*, p. 88.

TORMENTILLA. *Cal.* 8-cleft. *Pet.* 4. *Seeds* naked, beardless. *Recept.* dry, obsolete. *Rosaceæ*, p. 93.

DRYAS. *Cal.* 8- or 10-cleft. *Pet.* 5 or 8. *Seeds* each with a feathery tail. *Rosaceæ*, p. 94.

GEUM. *Cal.* 10-cleft. *Pet.* 5. *Seeds* each with a bent hooked tail. *Recept.* columnar. *Rosaceæ*, p. 94.

FRAGARIA. *Cal.* 10-cleft. *Seeds* naked, even, on the surface of a mostly pulpy, deciduous receptacle. *Rosaceæ*, p. 92.

Comarum. *Cal.* 10-cleft. *Seeds* naked, even, on the surface of a spongy hairy permanent *receptacle*. *Rosaceæ*, p. 92.

Potentilla. *Cal.* 10-cleft. *Seeds* naked, rugged, beardless. *Recept.* dry, obsolete. *Rosaceæ*, p. 92.

Class XIII. Polyandria. *Stamens numerous, from the receptacle.*

Order I. Monogynia. *Pistil* 1.

* *Petals* 4.

Papaver. *Cal.* of 2 leaves. *Caps.* of 1 cell, opening by pores under the *stigma*. *Papaveraceæ*, p. 13.

Meconopsis. *Cal.* of 2, caducous leaves. *Pet.* 4. *Style* evident. *Stigma* of few rays. *Capsule* opening at the top by 4—6 valves. *Receptacles* of the *seeds* filiform. *Papaveraceæ*, p. 14.

Chelidonium. *Cal.* of 2 leaves. *Pod* of 1 cell. *Seeds* crested. *Papaveraceæ*, p. 14.

Glaucium. *Cal.* of 2 leaves. *Pod* of 2 or 3 cells. *Seeds* dotted. *Papaveraceæ*, p. 14.

* * *Petals* 5.

Helianthemum. *Cal.* of 3 equal leaves, or 5, of which 2 outer ones are smaller. *Pet.* 5. *Stigma* capitate. *Caps.* 3-valved. *Cistineæ*, p. 33.

Tilia. *Caps.* of several close cells. *Seeds* few. *Cal.* in 5 deep, valvular, equal segments, deciduous. *Tiliaceæ*, p. 53.

* * * *Petals numerous.*

Nymphæa. *Berry* coated, of many cells. *Cal.* larger than the petals. *Pet.* seated on the germen. *Nect.* in the centre of the stigma. *Nymphæaceæ*, p. 11.

Nuphar. *Berry* coated, of many cells. *Pet.* from the receptacle, furrowed and honey-bearing at the back. *Nymphæaceæ*, p. 12.

Order II. Pentagynia. *Pistils* 2—6.

Aquilegia. *Cal.* 0. *Pet.* 5, equal. *Nect.* 5, spurred below. *Ranunculaceæ*, p. 10.

Stratiotes. *Cal.* superior, 3-cleft. *Pet.* 3. *Berry* coated, of 6, or more cells. *Hydrocharideæ*, p. 272.

Order III. Polygynia. *Pistils numerous.*

Thalictrum. *Cal.* 0. *Pet.* 4 *or* 5, imbricated. *Seeds* without any appendage. *Ranunculaceæ*, p. 5.

Clematis. *Cal.* 0. *Pet.* 4—8, valvular, or folded in at the edges. *Seeds* tailed. *Recept.* capitate. *Ranunculaceæ*, p. 4.

Anemone. *Cal.* 0. *Pet.* 5—15, imbricated. *Seeds* numerous. *Ranunculaceæ*, p. 6.

Helleborus. *Cal.* 0. *Pet.* 5. permanent. *Nect.* tubular, 2-lipped. *Follicles* 3 or 4. *Ranunculaceæ*, p. 9.

Caltha. *Cal.* 0. *Pet.* 5, or more. *Nect.* 0. *Follicles* 5—10. *Ranunculaceæ*, p. 9.

Trollius. *Cal.* 0. *Pet.* 5—15, deciduous. *Nect.* flattened. *Follicles* numerous. *Ranunculaceæ*, p. 9.

Ranunculus. *Cal.* of 5 leaves. *Pet.* 5, or more, with *nectaries* in their claws. *Seeds* numerous, naked. *Ranunculaceæ*, p. 6.

Class XIV. Didynamia. *Stamens 4, 2 outermost longest.*

Order I. Gymnospermia. *Seeds naked, 4 at most.*

* *Calyx in 5 segments, nearly regular.*

Leonurus. *Anth.* incumbent, besprinkled with hard granulations. *Upper lip* of the *corolla* shaggy. *Labiatæ*, p. 211.

Glechoma. *Anth.* converging cross-wise in pairs. *Upper lip* cloven. *Labiatæ*, p. 211.

Mentha. *Filam.* spreading widely, straight. *Corolla* nearly equal. *Labiatæ*, p. 212.

Teucrium. *Upper lip* of the *corolla* in 2 very deep, remote, lateral lobes. *Labiatæ*, p. 210.

Ajuga. *Upper lip* minute, abrupt, notched. *Labiatæ*, p. 210.

Betonica. *Upper lip* nearly flat, ascending; tube cylindrical, incurved. *Stam.* not longer than the throat. *Labiatæ*, p. 215.

Lamium. *Corolla* toothed at each side of the throat. *Labiatæ*, p. 216.

Galeopsis. *Lower lip* of the *corolla* with a pair of hollow prominences at the base in front. *Labiatæ*, p. 217.

Galeobdolon. *Lower lip* in 3 acute, undivided segments. *Labiatæ*, p. 216.

Stachys. *Lower lip* with reflexed lateral lobes. *Stam.* finally spreading outwards at each side. *Labiatæ*, p. 215.

Nepeta. *Lower lip* numerously notched; throat bordered and reflexed at each side. *Labiatæ*, p. 217.

Ballota. *Cal.* with 10 furrows. *Upper lip* of the *cor.* vaulted, shaggy. *Labiatæ*, p. 214.

Marrubium. *Cal.* with 10 furrows. *Upper lip* of the *cor.* straight, linear, cloven. *Labiatæ*, p. 214.

* * *Calyx 2-lipped.*

Scutellaria. *Cal.* when in fruit closed by a dorsal lid. *Labiatæ*, p. 218.

Thymus. *Cal.* closed with dense converging hairs. *Labiatæ*, p. 218.

Clinopodium. *Cal.* many-ribbed. *Involucrum* of numerous taper leaves under the flowers. *Labiatæ*, p. 220.

Origanum. *Cal.* without ribs. *Invol.* of numerous, dilated, flat leaves, 1 to each *flower*, collected into a spurious *catkin*. *Labiatæ*, p. 220.

Prunella. *Filaments* forked, 1 of the points bearing the anther. *Labiatæ*, p. 219.

Order II. Angiospermia. *Seeds in a capsule, generally numerous.*

* *Calyx 4-cleft.*

Lathræa. *Caps.* of 1 cell. A *gland* under the germen. *Orobancheæ*, p 207.

BARTSIA. *Caps.* of 2 cells. *Seeds* angular. *Scrophularineæ*, p. 202.

RHINANTHUS. *Caps.* of 2 cells. *Seeds* compressed, imbricated. *Scrophularineæ*, p. 201.

MELAMPYRUM. *Caps.* of 2 cells. *Seeds* in pairs, tumid, smooth. *Melampyraceæ*, p. 207.

EUPHRASIA. *Caps.* of 2 cells. *Seeds* striated. *Anth.* spinous. *Scrophularineæ*, p. 202.

* * *Calyx 5-cleft.*

SCROPHULARIA. *Caps.* of 2 cells. *Cor.* reversed; tube inflated; limb rounded, much shorter. *Scrophularineæ*, p. 205.

SIBTHORPIA. *Caps.* of 2 cells, with transverse partitions. *Cor.* nearly wheel-shaped. *Stam.* converging laterally in pairs. *Scrophularineæ*, p. 204.

VERBENA. *Cal.* with 1 of the 5 teeth abrupt. *Cor.* nearly equal, curved. *Stam.* in the tube. *Verbenaceæ*, p. 208.

DIGITALIS. *Caps.* of 2 cells. *Cor.* bell-shaped, tumid underneath. *Stam.* bent. *Scrophularineæ*, p. 204.

LINARIA. *Cal.* 5-parted. *Cor.* personate, spurred at the base, the mouth closed by a projecting palàte. *Caps.* ventricose, 2-celled, opening by valves or teeth. *Scrophularineæ*, p. 203.

ANTIRRHINUM. *Caps.* of 2 cells, bursting unequally at the summit. *Cor.* closed with a palate, prominent or spurred at the base behind. *Scrophularineæ*, p. 204.

PEDICULARIS. *Caps.* of 2 cells. *Seeds* pointed. *Cor.* ringent; upper lip compressed. *Scrophularineæ*, p. 201.

* * * *Calyx of 2 leaves.*

OROBANCHE. *Calyx leaves* lateral. A *gland* under the germen. *Caps.* of 1 cell, with 4 *receptacles*. *Orobancheæ*, p. 206.

Class XV. TETRADYNAMIA. *Stamens 6, 2 opposite ones shortest.* (*Nat. Ord.* CRUCIFERÆ, *Juss.*)

Order I. SILICULOSA. *Fruit a short roundish pod, or pouch.*

* *Cotyledons accumbent.*

DRABA. *Pouch* entire, laterally compressed; valves nearly flat. *Seeds* numerous. p. 20.

CRAMBE. *Pouch* globose, stalked, coriaceous, of 1 cell, without valves, deciduous. *Seed* solitary. p. 29.

CAKILE. *Pouch* angular, of 2 joints, each of 1 cell, without valves; the uppermost deciduous. *Seeds* solitary. p. 22.

COCHLEARIA. *Pouch* nearly entire, turgid, rugged, of 2 valves. *Seeds* numerous. p. 21.

THLASPI. *Pouch* laterally compressed, emarginate; *valves* winged at the back, many-seeded. *Cotyledons* accumbent. p. 22.

CAPSELLA. *Pouch* laterally compressed, obcordato-cuneate; the *valves* sharply keeled, without wings, many-seeded. *Cotyledons* incumbent. p. 26.

* * *Cotyledons incumbent.*

SUBULARIA. *Pouch* entire, transversely compressed; valves tumid. *Seeds* numerous. *Cotyledons* linear. p. 30.

ISATIS. *Pouch* entire, deciduous, bordered, transversely compressed, of 2 valves, and 1 cell. *Seed* solitary. p. 27.

CAMELINA. *Pouch* entire; valves tumid. *Seeds* numerous, not bordered. *Filam.* all simple. p. 25.

LEPIDIUM. *Pouch* cloven, elliptical, of 2 cells, and two keeled valves. *Seeds* solitary in each cell. p. 26.

Order II. SILIQUOSA. *Fruit a long many-seeded pod.*

* *Cotyledons flat, accumbent.*

CHEIRANTHUS. *Pod* rather compressed, straight. *Stigma* either of 2 spreading lobes, or capitate. *Cal.* closed; 2 of the leaves prominent at the base. p. 17.

MATTHIOLA. *Pod* nearly cylindrical, straight. *Stigma* of 2 converging lobes, either thickened or protuberant at the back. *Cal.* closed; 2 of the leaves prominent at the base. p. 17.

NASTURTIUM. *Pod* nearly cylindrical, oblique; valves concave, without keels. *Stigma* obtuse, notched. *Cal.* spreading, equal at the base. p. 17.

BARBAREA. *Pod* quadrangular, two-edged. *Seeds* in a single row. *Cal.* erect. *Glands* at the inside of the shorter filaments. p. 18.

ARABIS. *Pod* linear; valves flat. *Seeds* in a single row. p. 19.

CARDAMINE. *Pod* linear; valves flat, without ribs, bursting elastically from the base. *Seeds* on capillary stalks. p. 20.

* * *Cotyledons flat, incumbent.*

SISYMBRIUM. *Pod* nearly cylindrical. *Stigma* capitate, notched. p. 23.

HESPERIS. *Pod* inaccurately quadrangular. *Stigma* nearly sessile, of 2 converging lobes. *Cal.* closed, with 2 protuberances at the base. *Seeds* not bordered. p. 23.

ERYSIMUM. *Pod* quadrangular. *Stigma* capitate, notched. p. 24.

* * * *Cotyledons folded, incumbent.*

BRASSICA. *Pod* nearly cylindrical, beaked, with 2 valves. *Seeds* nearly globular. *Cal.* closed. p. 28.

SINAPIS. *Pod* nearly cylindrical, somewhat beaked, with 2 valves. *Seeds* nearly globular. *Cal.* spreading. p. 29.

RAPHANUS. *Pod* tumid, imperfectly jointed, without valves. *Seeds* globular. p. 30.

Class XVI. MONADELPHIA. *Filaments combined; in one set.*

Order I. PENTANDRIA. *Stamens* 5.

ERODIUM. *Style* 1. *Fruit* beaked, of 5 aggregate capsules, each tipped with a spiral *awn*, bearded on the inside. *Geraniaceæ*, p. 57.

(See *Linum* in Cl. V. Ord. I.—*Geran. pusillum* in Ord. Decandria.)
Oxalis in Cl. X.

Order II. DECANDRIA. *Stamens* 10.

GERANIUM. *Style* 1. *Fruit* beaked, of 5 aggregate *capsules*, each tipped with a recurved naked *awn*. *Geraniaceæ*, p. 55.

Order III. POLYANDRIA. *Stamens numerous.*

LAVATERA. *Styles* numerous. *Outer calyx* 3-lobed. *Capsules* whorled, single-seeded. *Malvaceæ*, p. 37.

MALVA. *Styles* numerous. *Outer cal.* of 3 leaves. *Caps.* whorled, single-seeded. *Malvaceæ*, p. 36.

ALTHÆA. *Styles* numerous. *Outer cal.* in 9 segments. *Caps.* whorled, single-seeded. *Malvaceæ*, p. 37.

Class XVII. DIADELPHIA. *Filaments combined; in two sets.*

Order I. HEXANDRIA. *Stamens* 6.

FUMARIA. *Cal.* of 2 leaves. *Cor.* ringent, prominent, and bearing honey at the base. Each *filament* with three anthers. *Fumariaceæ*, p. 16.

CORYDALIS. *Cal.* of 2, small, deciduous leaves. *Pet.* 4, one of them gibbous or spurred at the base. *Pod* 2-valved, compressed, many-seeded. *Fumariaceæ*, p. 15.

Order II. OCTANDRIA. *Stamens* 8.

POLYGALA. Two segments of the calyx like wings. Standard of the *corolla* cylindrical. *Caps.* of 2 cells and 2 valves. *Seeds* solitary, crested. *Polygaleæ*, p. 35.

Order III. DECANDRIA. *Stamens* 10.

* *Stamens all connected at the base, the tube mostly split along its upper side.*

The plants of this Order constitute the Natural Order *Leguminosæ*.

SPARTIUM. See *Cytisus*, p. 75.

GENISTA. *Filam.* upwards in 2 sets. *Stigma* terminal, somewhat capitate. *Legume* turgid. *Pistil* depressing the keel. *Standard* reflexed. p. 74.

ULEX. *Cal.* of 2 leaves, nearly as long as the *legume*. p. 74.

ANTHYLLIS. *Cal.* inflated, including the legume. p. 75.

ONONIS. *Cal.* in 5 deep segments. *Legume* rhomboid, sessile. *Standard* striated. p. 75.

* * *Stigma, or style, downy; without the character of the former section.*

OROBUS. *Style* linear, nearly cylindrical. *Stigma* along the upper side, downy. p. 84.

PISUM. *Style* triangular. *Stigma* along the prominent upper angle, downy. p. 81.

LATHYRUS. *Style* flattened vertically. *Stigma* along the dilated upper half of the style, downy. p. 83.

VICIA. *Style* bearded in front, below the *stigma*. p. 82.

ERVUM. *Stigma* capitate, all over downy. p. 81.

* * * *Legume more or less perfectly 2-celled; without the former characters.*

ASTRAGALUS. *Legume* tumid, of 2 longitudinal cells. p. 76.

* * * * *Legume with scarcely more than* 1 *seed; without the former characters.*

TRIFOLIUM. *Legume* hardly longer than the calyx, with 1 *seed*, rarely more, deciduous, not bursting. p. 77.

MELILOTUS. *Legume* 1- or few-seeded, indehiscent, longer than the calyx. *Petals* distinct, deciduous. *Flowers* racemose. *Leaves* ternate. p. 76.

* * * * * *Legume either jointed, or spiral; without the former characters.*

ORNITHOPUS. *Legume* somewhat cylindrical, curved, of many close, single-seeded joints. *Keel* rounded. p. 85.

MEDICAGO. *Legume* spiral, compressed, somewhat membranous. *Pistil* pressing the *keel* downwards. p. 80.

* * * * * * *Legume of* 1 *cell, with numerous seeds, without the former characters.*

LOTUS. *Legume* cylindrical, spongy within. *Wings* converging at their upper edges. *Filam.* partly dilated. p. 79.

Class XVIII. POLYADELPHIA. *Filaments combined, in more than two sets.*

Order I. POLYANDRIA. *Stamens numerous.*

HYPERICUM. *Cal.* inferior, in 5 deep divisions. *Pet.* 5. *Filam.* united at the base, into 3 or 5 parcels. *Caps.* with many *seeds*. *Hypericineæ*, p. 38.

Class XIX. SYNGENESIA. *Anthers united into a tube. Flowers compound.* (*Nat. Ord.* COMPOSITÆ, *Juss.*)

Order I. ÆQUALIS. *All the florets perfect.*

* *All the Corollas ligulate or strap-shaped.* CICHORACEÆ, *Juss.*

TRAGOPOGON. *Receptacle* naked. *Down* stalked, feathery. *Cal.* simple, of several equal scales, in 2 rows. p. 165.

PICRIS. *Involucre* double, inner of many compact, upright, equal scales, outer of several lax, small, linear ones. *Recept.* naked. *Pappus* sessile, slightly feathery. *Fruit* transversely striated. p. 162.

HELMINTHIA. *Involucre* double; inner of eight close scales, outer of four large, lax, leafy ones. *Recept.* naked. *Pappus* feathery, stalked. *Fruit* transversely striated. p. 161.

SONCHUS. *Recept.* naked. *Down* sessile, simple. *Cal.* simple, imbricated, swelling at the base. p. 159.

PRENANTHES. *Recept.* naked. *Down* nearly sessile, simple. *Cal.* double. *Florets* in a single row. p. 160.

Leontodon. *Recept.* naked. *Down* stalked, simple. *Cal.* imbricated, double; scales of the outermost lax. p. 160.

Apargia. *Recept.* naked, dotted. *Down* feathery, sessile, unequal and various. *Cal.* double; innermost imbricated. p. 166.

Thrincia. *Involucre* nearly simple, multipartite, with a few small scales at the base. *Recept.* naked, pitted. *Pappus* of the *florets* of the *circumference* scaly, those of the *centre* feathery, sessile. p. 165.

Hieracium. *Recept.* almost naked, dotted. *Down* simple, sessile. *Cal.* imbricated, ovate. p. 162.

Crepis. *Recept.* roughish. *Down* simple, partly stalked. *Cal.* double; outermost lax, tumid, deciduous. p. 161.

Hypochæris. *Recept.* chaffy. *Seed-down* feathery. *Cal.* somewhat imbricated. p. 165.

Lapsana. *Recept.* naked. *Down* none. *Cal.* double; innermost of equal channelled scales. p. 160.

Cichorium. *Recept.* slightly chaffy. *Down* chaffy, shorter than the seed. *Cal.* double. p. 166.

* * *Corollas all tubular, and generally spreading, so as to form a hemispherical head.* CINAROCEPHALÆ, *Juss.*

Arctium. *Cal.* globose; scales spinous, hooked, inflexed. p. 156.

Saussurea. *Invol.* oblong, imbricated with unarmed scales. *Recept.* setose or chaffy. *Pappus* double, sessile; *ext.* of short, rough bristles, persistent; *int.* feathery, united at the base. *Anthers* below setose. p. 154.

Carduus. *Cal.* tumid, imbricated; scales spinous. *Recept.* hairy. *Down* deciduous, capillary, roughish. p. 158.

Cnicus. *Cal.* tumid, imbricated; scales spinous. *Recept.* hairy. *Down* deciduous, feathery. p. 155.

Carlina. *Cal.* swelling; outer scales spinous; inner coloured, polished, radiant. *Recept.* chaffy. *Down* feathery. p. 156.

(See *Centaurea*, in Ord. FRUSTRANEA.)

* * * *Corollas all tubular, erect and parallel, crowded, forming a level top, without a ray. (Part of* CORYMBIFERÆ, *Juss.)*

Bidens. *Recept.* chaffy. *Down* rough with reversed prickles. *Cal.* of many parallel, channelled scales. *Cor.* occasionally radiated. p. 154.

Eupatorium. *Recept.* naked. *Down* rough. *Cal.* imbricated, oblong. *Style* cloven half way down, prominent. p. 142.

(See *Tanacetum*, *Senecio*, *Aster* and *Anthemis*, in Ord. II.)

Order II. SUPERFLUA.

Florets all perfect and fertile, though those of the circumference have no stamens.

* *Corolla of the marginal florets obsolete, or wanting.—Discoid.* (CORYMBIFERÆ, *Juss.*)

Tanacetum. *Recept.* naked. *Seed* with a membranous crown. *Cal.* imbricated, hemispherical. *Florets* of the circumference 3-cleft, obsolete, sometimes wanting. p. 151.

Artemisia. *Recept.* either naked or hairy. *Down* none. *Cal.* imbricated; scales rounded, converging. *Fl.* of the circumference awl-shaped, entire. p. 151.

Gnaphalium. *Recept.* naked. *Down* rough, or feathery. *Cal.* imbricated; scales filmy, coloured. *Fl.* of the circumference awl-shaped. p. 145.

(See *Petasites*, *Aster*, and some *sp.* of *Senecio*, in the following section.)

* * *Corollas of the circumference or ray ligulate.—(Radiate.)*

Erigeron. *Recept.* naked. *Down* simple. *Cal.* imbricated. *Flor.* of the radius numerous, linear, very narrow. *Anth.* simple. p. 144.

Tussilago. *Invol.* formed of a simple row of equal, linear *scales*. *Recept.* naked. *Fl.* radiant. *Cor.* of the circumference long, linear, numerous; of the disk few. *Pappus* simple. *Scape* single-flowered. p. 148.

Petasites. Nearly diœcious. *Invol.* imbricated with 2 rows of lanceolate *scales* *Fl.* not radiant. *Pappus* simple. *Scapes* many-flowered. p. 148.

Senecio. *Recept.* naked. *Down* simple. *Cal.* double; the innermost cylindrical, of numerous equal scales; outer of several minute ones; scales all withered at the extremity. p. 146.

Aster. *Recept.* naked. *Down* simple. *Cal.* imbricated; lowermost scales spreading. *Flor.* of the radius more than 10. p. 144.

Solidago. *Recept.* naked, pitted. *Down* simple. *Cal.* imbricated, with close scales. *Flor.* of the radius about 5. p. 145.

Inula. *Recept.* naked. *Down* simple. *Cal.* imbricated. *Flor.* of the radius very numerous, linear. *Anthers* with 2 bristles at the base. p. 143.

Limbarda. *Invol.* with imbricated, narrow *scales*. *Anth.* with bristles at the base. *Recept.* naked. *Pappus* simple, rough. p. 143.

Pulicaria. *Invol.* hemispherical, closely imbricated with narrow scales. *Anth.* with bristles at the base. *Pappus* double; *outer* one short, cup-shaped, membranous, toothed; *inner* long, rough. *Fl.* yellow. p. 143.

Bellis. *Recept.* naked, conical. *Down* none. *Cal.* hemispherical; scales equal. *Seed* obovate. p. 149.

Chrysanthemum. *Recept.* naked, rather convex. *Down* none. *Cal.* hemispherical, imbricated; scales with a dilated membranous border. p. 149.

Pyrethrum. *Recept.* naked. *Seed* crowned with a border. *Cal.* hemispherical, imbricated; scales rather acute, membranous at the edges. p. 149.

Matricaria. *Recept.* naked, nearly cylindrical. *Down* none. *Cal.* nearly flat, imbricated; scales membranous at the edges. p. 150.

Anthemis. *Recept.* chaffy. *Seed* crowned with a slight border. *Cal.* hemispherical; scales nearly equal. *Flor.* of the radius numerous, oblong. p. 152.

Achillæa. *Recept.* chaffy. *Down* none. *Cal.* ovate; scales imbricated, unequal. *Flor.* of the radius 5—10, roundish, somewhat heart-shaped. p. 153.

Order III. Frustranea.

Florets of the disk perfect and fertile; those of the circumference neuter. (Part of Cinarocephalæ, *Juss.*)

Centaurea. *Recept.* bristly. *Down* simple, or feathery, rarely wanting. *Flor.* of the radius funnel-shaped, dilated, regular, without stamens or style. p. 157.

Class XX. GYNANDRIA. *Stamens situated either on the style or germen.*

Order I. MONANDRIA. *Stamen,* or *Sessile Anther,* 1.

* *Anther of 2 distinct vertical cells, fixed to the summit of the column.* (All belong to the Nat. Ord. ORCHIDEÆ.)

ORCHIS. *Fl.* ringent. *Lip* spurred. Glands of the stalks of the *pollen-masses* contained in a common little pouch. p. 275.

GYMNADENIA. *Lip* spurred. *Glands* of the stalks of the *pollen-masses* naked, approximated. p. 276.

HABENARIA. *Fl.* ringent. *Lip* spurred. *Glands* of the stalks of the *pollen-masses* naked, distant. p. 277.

OPHRYS. *Cal.* spreading. *Nect.* without a spur, convex. p. 278.

* * *Anther parallel to the stigma, of 2 cells close together, permanent.*

NEOTTIA. *Cal.* converging, embracing the base of the flat *nectary,* which is without a spur. *Pet.* converging. *Column* without wings. p. 278.

LISTERA. *Cal.* spreading. *Nect.* without a spur, nearly flat. *Pet.* spreading. *Column* without wings. p. 279.

* * * *Anther terminal, fixed.*

EPIPACTIS. *Nect.* without a spur; tumid underneath at the base; contracted in the middle, undivided at the end. p. 280.

* * * * *Anther a terminal deciduous lid.*

MALAXIS. *Nect.* embracing the *column* with its concave base, without a spur, sessile. *Pet.* spreading. p. 281.

Class XXI. MONŒCIA. *Stamens and Pistils in separate flowers, on the same plant.*

Order I. MONANDRIA. *Stamen* 1.

EUPHORBIA. *Involucre* with numerous *barren fl.* and 1 *fertile. Barren fl. Cal.* none. *Cor.* none. *Fert. fl. Cal.* none. *Cor.* none. *Caps.* 3-lobed. *Styles* 3, cloven. *Euphorbiaceæ,* p. 235.

ZANNICHELLIA. *Invol.* none. *Barren fl. Cal.* none. *Cor.* none. *Fert. fl. Cal.* of 1 leaf. *Cor.* none. *Germ.* 4, or more. *Seeds* 4, stalked. *Stigmas* peltate. *Fluviales,* p. 268.

ZOSTERA. *Fl.* aggregate. *Spadix* flat, many-flowered. *Drupe. Nut* with one kernel. *Stigm.* 2. *Fluviales,* p. 267.

CALLITRICHE. *Cal.* none. *Pet.* 2, inferior. *Seeds* 4, naked, compressed. Some flowers separated. *Callitrichineæ,* p. 238.

(For *Chara* see Cl. *Cryptogamia.*)

Order II. DIANDRIA. 2 *stamens.*

(See *Callitriche* in Ord. I. *Carex* in Ord. III.)

Order III. TRIANDRIA. 3 *stamens.*

TYPHA. *Barr. fl. Catkin* hairy. *Cal.* none. *Cor.* none. *Anth.* about

3 on each *filament*. *Fert. fl. Catkin* hairy. *Seed* 1, on a hairy stalk. *Typhaceæ*, p. 262.

SPARGANIUM. *Barr. fl. Cal.* 3-leaved. *Cor.* none. *Fert. fl. Cal.* 3-leaved. *Cor.* none. *Drupe* dry. *Typhaceæ*, p. 263.

CAREX. *Barr. fl. Catkin* imbricated. *Cal.* a scale. *Cor.* none. *Fert. fl. Catkin* imbric. *Cal.* a scale. *Cor.* a hollow permanent *glume*, investing the loose *seed*. *Cyperaceæ*, p. 325.

Order IV. TETRANDRIA. *Stamens* 4.

LITTORELLA. *Barr. fl. Cal.* 4-leaved. *Cor.* 4-cleft. *Stam.* capillary, very long. *Fert. fl. Cal.* none. *Cor.* unequally 3- or 4-cleft. *Style* very long. *Nut* of 1 cell. *Plantagineæ*, p. 176.

URTICA. *Barr. fl. Cal.* 4-leaved. *Pet.* none. *Nect.* central, cup-shaped. *Stam.* the length of the calyx. *Fert. fl. Cal.* 2-leaved. *Cor.* none. *Seed* 1, superior polished. *Urticeæ*, p. 232.

ALNUS. *Barr. fl. Cal.* scale of a *catkin*, permanent, 3-flowered. *Cor.* deeply 4-cleft. *Fert. fl. Cal.* scale of a *catkin*, permanent, 2-flowered. *Cor.* none. *Styles* 2. *Nut* compressed, without wings. *Amentaceæ*, p. 242.

(See *Eriocaulon* in Ord. VI. *Myrica* in Cl. xxii.)

Order V. PENTANDRIA. *Stamens* 5.

XANTHIUM. *Barr. fl. Common Cal.* imbricated, many-flowered, with intermediate scales. *Cor.* of 1 petal, funnel-shaped, 5-cleft. *Fertile fl. Cal.* of 2 leaves, with 2 flowers. *Cor.* none. *Drupe* spurious, coated with the prickly calyx, cloven. *Nut* of 2 cells. *Compositæ*, p. 153.

(See *Fagus* and *Quercus* in Ord. Polyandria. *Atriplex* in Cl. Polygamia.)

Order VI. HEXANDRIA. *Stamens* 6.

ERIOCAULON. *Common Calyx* imbricated, many-flowered. *Barr. fl.* in the middle. *Cal.* in 6 or 4 deep segments. *Stam.* 6, 4, or 3. *Fert. fl.* in the circumference. *Pet.* 6 or 4. *Style* 1. *Caps.* superior, 2- or 3-lobed. *Seeds* solitary. *Restiaceæ*, p. 289.

(See *Quercus* in Ord. Polyandria.)

Order VII. POLYANDRIA. *Many Stamens.*

MYRIOPHYLLUM. *Barr. fl. Cal.* 4-leaved. *Pet.* 4. *Stam.* 8. *Fertile fl. Cal.* 4-leaved. *Pet.* 4. *Stigmas* 4, sessile. *Drupes* 4. *Halorageæ*, p. 112.

POTERIUM. *Barr. fl. Cal.* 3-leaved. *Cor.* deeply 4-cleft. *Stam.* 30—50. *Fert. fl. Cal.* 3-leaved. *Cor.* deeply 4-cleft. *Pistil* 1 or 2. *Nut* coated, of 1 or 2 cells. *Rosaceæ*, p. 106.

SAGITTARIA. *Barren fl. Cal.* 3-leaved. *Pet.* 3. *Stam.* about 24. *Fert. fl. Cal.* 3-leaved. *Pet.* 3. *Pist.* numerous. *Seeds* numerous, bordered. *Alismaceæ*, p. 271.

CERATOPHYLLUM. *Barr. fl. Cal.* many-cleft. *Cor.* none. *Stam.* 16—20. *Fert. fl. Cal.* many-cleft. *Cor.* none. *Stigma* nearly sessile, oblique. *Drupe* compressed. *Ceratophylleæ*, p. 239.

FAGUS. *Barr. fl.* in a *catkin*. *Cal.* in several segments. *Cor.* none. *Stam.* 5—20. *Fert. fl. Cal.* double; outer inferior, prickly, in several deep segments, 2- or 3-flowered; *inner* superior, 5- or 6-cleft, *Cor.* none. *Styles*

5 or 6. *Nuts* 2 or 3, loosely invested with the spreading outer calyx. *Amentaceæ*, p. 254.

Castanea. See *Amentaceæ*, p. 255.

Quercus. *Barr. fl.* in a *catkin*. *Cal.* in several segments. *Cor.* none. *Stam.* 8 or more. *Fert. fl.* *Cal.* double; *outer* inferior, scaly, undivided; *inner* superior, in 6 deep segments. *Cor.* none. *Style* 1. *Nut* solitary, closely invested at its base with the hemispherical outer calyx. *Amentaceæ*, p. 255.

Corylus. *Barr. fl.* in a *catkin*. *Cal.* a 3-cleft scale. *Cor.* none. *Stam.* 8 or more. *Fert. fl.* *Cal.* double; *outer* inferior, divided; *inner* superior, obsolete. *Cor.* none. *Styles* 2. *Nut* solitary, bony, invested with the enlarged, coriaceous, jagged outer calyx. *Amentaceæ*, p. 256.

Carpinus. *Barr. fl.* in a *catkin*. *Cal.* a rounded *scale*. *Cor.* none. *Stam.* 10, or more. *Fert. fl.* *Cal.* double; *outer* inferior, of several deciduous *scales*; *inner* superior, in 3 deep, sharp segments, permanent. *Cor.* none. *Styles* 2. *Nut* ovate, angular, naked. *Amentaceæ*, p. 256.

Betula. *Barr. fl.* in a *catkin*. *Cal.* a ternate *scale*. *Cor.* none. *Stam.* 10—12. *Fert. fl.* in a *catkin*. *Cal.* a peltate, 3-lobed, 3-flowered *scale*. *Cor.* none. *Styles* 2. *Nut* winged, deciduous. *Amentaceæ*, p. 242.

Arum. *Common Cal.* a sheathing leaf, enclosing a common stalk, naked above. *Cor.* none. *Barr. fl.* *Stam.* numerous, in a dense ring, surmounted by another ring of abortive filaments. *Fert. fl.* *Germ.* numerous, in a dense ring, below the stamens, sessile. *Styles* none. *Stigmas* downy. *Berry* with several *seeds*. *Aroideæ*, p. 261.

Order VIII. Monadelphia. *Stamens united into one set.*

Pinus. *Barr. fl.* in a *catkin*, naked. *Stam.* numerous, on a common stalk. *Fert. fl.* in a *catkin*, of close, rigid, 2-lipped, 2-flowered *scales*. *Seeds* 2 to each scale, winged. *Coniferæ*, p. 258.

Class XXII. Diœcia. *Stamens and Pistils in separate flowers, on different plants.*

(Monandria. 1 *Stamen*. For some *Salices* see Ord. II.)

Order I. Diandria. *Stamens* 1—5, *mostly* 2.

Salix. *Barr. fl.* *Catkin* imbricated. *Cal.* a scale. *Pet.* none. *Nect.* 1 or more glands, at the base. *Stam.* 1—5. *Fert. fl.* *Catkin* imbricated. *Cal.* a scale. *Pet.* none. *Nect.* as in the barren fl. *Stigm.* 2. *Capsule* superior, of 1 cell, and 2 valves. *Seeds* tufted. *Amentaceæ*, p. 243.

Order II. Triandria. *Stamens* 3.

Empetrum. *Barr. fl.* *Cal.* in 3 deep segments. *Pet.* 3. *Stam.* capillary, 3—9. *Fert. fl.* *Cal.* in 3 deep segments. *Pet.* 3. *Stigm.* 9. *Berry* superior, with 9 *seeds*. *Empetreæ*, p. 238.

(See *Valeriana dioica* in Cl. III. Some *Salices* in Ord. I.)

Order III. Tetrandria. *Stamens* 4.

Myrica. *Barr. fl.* in a *catkin*. *Cal.* a concave scale. *Cor.* none. *Fert. fl.* in a *catkin*. *Cal.* a concave scale. *Cor.* none. *Styles* 2. *Berry* superior with 1 globular seed. *Myriceæ*, p. 257.

Order IV. PENTANDRIA. *Stamens* 5.

HUMULUS. *Barr. fl.* *Cal.* of 5 leaves. *Cor.* none. *Anth.* with 2 terminal pores. *Fert. fl.* in a *catkin.* *Cal.* an oblique, undivided scale. *Cor.* none. *Styles* 2. *Seed* 1, tunicated, winged with the calyx. *Urticeæ,* p. 233.

Order V. OCTANDRIA. *Stamens* 8.

RHODIOLA. *Barr. fl.* *Cal.* in 4 deep segments. *Pet.* 4. *Nect.* 4, notched. *Fert. fl.* *Cal. Pet. Nect.* the same. *Pist.* 4. *Caps.* 4, with many *seeds.* *Crassulaceæ,* see Addenda, p. 255.

POPULUS. *Barr. fl.* *Catkin* imbricated. *Cal.* a torn scale. *Cor.* turbinate, oblique, undivided. *Fert. fl.* *Catk. Cal. Cor.* the same. *Stigm.* 4 or 8. *Caps.* superior, of 1 cell and 2 valves. *Seeds* tufted. *Amentaceæ,* p. 253.

Order VI. ENNEANDRIA. *Stamens* 9.

MERCURIALIS. *Barr. fl.* *Cal.* in 3 deep segments. *Cor.* none. *Stam.* 9—12. *Anth.* of 2 globose cells. *Fert. fl.* *Cal.* the same. *Cor.* none. *Styles* 2. *Caps.* of 2 lobes and 2 cells. *Seeds solitary.* *Euphorbiaceæ,* p. 237.

HYDROCHARIS. *Barr. fl.* *Cal.* 3-cleft. *Pet.* 3. *Inner filam.* beaked. *Fert. fl.* *Cal.* and *Pet.* the same. *Styles* 6. *Caps.* inferior, of 6 cells, with many *seeds.* *Hydrocharideæ,* p. 272.

(Ord. *Decandria.* See *Silene* and *Lychnis* in Cl. X.—Ord. *Icosandria.* See *Rubus* and *Fragaria* in Cl. XII.—Ord. *Polyandria.* See *Stratiotes* in Cl. xiii. See *Populus* in Ord. V.)

Order VII. MONADELPHIA. *Stamens combined.*

JUNIPERUS. *Barr. fl.* *Cal.* scales of a *catkin.* *Cor.* none. *Stam.* 3. *Fert. fl.* *Cal.* scale of a catkin, fewer; finally pulpy, united into a *berry,* with 3 *seeds.* *Coniferæ,* p. 259.

TAXUS. *Barr. fl.* *Cal.* none. *Cor.* none. *Anth.* peltate, lobed. *Fert. fl.* *Cal.* cup-shaped, entire. *Cor.* none. *Style* 1. *Seed* 1, enclosed in the enlarged, pulpy, unconnected calyx. *Coniferæ,* p. 259.

Class XXIII. POLYGAMIA.

Stamens and pistils separate or united, on the same or on different plants, and having 2 different kinds of perianth.

Order I. MONŒCIA. *Flowers different on the same plant.*

ATRIPLEX. *United fl.* *Cal.* inferior, in 5 deep segments. *Cor.* none. *Stam* 5. *Style* deeply cloven. *Seed* 1, depressed. *Fert. fl.* *Cal.* inferior, in 2 deep segments. *Cor.* none. *Style* deeply cloven. *Seed* 1, compressed. *Chenopodeæ,* p. 229.

Class XXIV. CRYPTOGAMIA. *(Part of.)*

* *Stamens and pistils not visible.*

FILICES.

OBS. This order forms the *Filicoideæ,* or Fern-like plants, *Filices,* p. 327. —*Lycopodiaceæ,* p. 346.—*Marsileaceæ,* p. 348.—*Equisetaceæ,* p. 348.

For *Characeæ,* see p. 351.

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TABLE OF THE NATURAL ORDERS.

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OBS.—The Orders, Musci, Hepaticæ, and Lichenes, having been printed off before the other parts of the work, were inadvertently numbered 2, 3, 4, according to their respective Orders in the Class Cryptogamia, instead of the above arrangement; viz. 96, 97, 98.

FLORA HIBERNICA.

PART FIRST,

COMPRISING THE

FLOWERING PLANTS AND FERNS

OF IRELAND,

ARRANGED ACCORDING TO

THE NATURAL SYSTEM.

VASCULARES,

OR

FLOWERING PLANTS.

PLANTS furnished with flowers, and spiral vessels.—Phænogamous or Phanerogamous Plants *of Authors*.

Substance of the plant composed of cellular tissue, woody fibre, ducts, and spiral vessels. Leaves composed of parenchyma, and of veins consisting of woody fibre and spiral vessels. Cuticle with stomata. Flowers consisting of floral envelopes, stamens, and pistilla. Seeds distinctly attached to a placenta, covered with a testa, and containing an embryo with one or more cotyledons; germinating at fixed points, the plumula and radicle.

Vasculares are divided into two classes *Exogenæ* or *Dicotyledonous*, and *Endogenæ* or *Monocotyledonous plants.*

CLASS I. EXOGENÆ OR DICOTYLEDONS.

Trunk more or less conical, formed of three parts, one within the other, viz. the bark, the wood, and the pith, of which the wood is enclosed between the two others; increasing by an annual deposition of new wood and cortical matter between the wood and bark. Leaves always articulated with the stem, with branching reticulated veins, often opposite and divided. Flowers generally with a distinct calyx and a quinary division of the floral envelopes. Embryo with two or more opposite cotyledons, which often become green and leaf-like after germination; radicle naked, *i. e.* elongating into a root without penetrating any external case.

Exogenous plants have their seeds either enclosed in a pericarpium (*Angiospermæ*), or naked (*Gymnosperæ*). The latter only contains one order of indigenous plants viz. *Coniferæ.*

SUBCLASS I. THALAMIFLORÆ. *De Cand.*

Calyx of many sepals or pieces (sometimes combined at the base). *Petals* many, distinct, and as well as the stamens, inserted upon the receptacle, not upon the calyx; hence hypogynous, (from *ὑπω*, *beneath* and *γυνη*, the *pistil.*)

ORD. 1. RANUNCULACEÆ. *Juss.* Ranunculus, or Crowfoot Family.

Perianth double, free, hypogynous (inserted below the Germens or Ovaries). Sepals 3—6, usually 5. Petals equal in number to the sepals, or double or triple, free, with an imbricated æstivation, rarely none, sometimes formed of the dilated filaments, and then plane, sometimes from the transformed anthers, and then cuculate. Stamens free, indefinite: anthers adnate in the true species of *Ranunculus* and reversed. Pistils many, inserted upon the receptacle, rarely, by imperfection, or by their union, solitary. Carpels (small clustered pericarps) either achenia, berries capsules or follicles, one—or many-seeded. *Seeds* sometimes solitary and erect, or pendulous, sometimes many arranged on each side in series, along the margins of the carpels. Albumen horny, large. Embryo very minute. *Herbs, undershrubs, or climbing shrubs. Roots fasciculate, granulated or fibrous. Leaves alternate or in the* CLEMATIDEÆ *opposite, often variously divided, their bases dilated into a semiamplexicaul sheath, simple. Hairs none, or simple.*

The plants of this order are usually acrid and poisonous, and some have a powerful epispastic effect, and when applied to the skin, produce ulcers which are difficult to heal.

§ *Genuine Ranunculaceæ.*

1. CLEMATIS. *Linn.* Traveller's Joy.

Sepals 4—8, coloured. *Petals* none, or shorter than the sepals. *Pericarps* (*Cariopsides*) numerous, terminating in a bearded tail.—*Roots* perennial. *Leaves* exactly opposite. Name from Κλημα, *the shoot of a vine*, which its long branches somewhat resemble. *Polyandria. Polygynia.*

1. C. *Vitalba*, Linn. *Common Traveller's Joy.* Stem climbing; leaves pinnate; leaflets cordato-ovate, inciso-lobate; petioles twining; peduncles rather shorter than the leaves. *Br. Fl.* 1. *p.* 263. *E. Fl. v.* iii. *p.* 39. *E. Bot. t.* 612.

Very abundant in woods at Baronston, County of Westmeath, climbing to the tops of the highest trees, where it has probably been planted; *Mr. John Bain.* Hedges near Raheny, and other places in the vicinity of Dublin, naturalized. *Fl. May, June.* ♄.—*Petioles* acting as tendrils. *Flowers* greenish white. *Fruit* very beautiful, with its long white feathery *awns*.

2. Thalictrum. *Linn.* Meadow-Rue.

Sepals 4—5. *Petals* none. *Cariopsides* dry, not awned, sometimes stipulate, sometimes with a longitudinal furrow.—Name from θαλλω, *to be green* or *flourishing*.

Polyandria. Polygynia.

1. T. *alpinum*, Linn. *Alpine Meadow-Rue.* Stem simple, nearly leafless; raceme simple, terminal; flowers drooping. *Br. Fl.* 1. *p.* 262. *E. Fl. v.* iii. *p.* 40. *E. Bot. t.* 262.

Moist limestone rocks on Ben Bulben, County of Sligo, where it had been previously found by Mr. Edward Murphy. *Fl. July.* ♃.—*Root-leaves* upon long stalks, biternate; *leaflets* roundish, crenate or lobed, dark green. *Stamens* 10—12. *Germens* 2—4. *Flowers* few.

2. T. *minus*, Linn. *Lesser Meadow-Rue.* Leaves 3—4 pinnate; leaflets roundish, glabrous, trifid, and toothed, glaucous beneath; panicle diffuse, its branches alternate; flowers mostly drooping. *Br. Fl.* 1. *p.* 262. *E. Fl. v.* iii. *p.* 41. *E. Bot. t.* 11.

On the sand hills near Baldoyle and Portmarnock in great abundance; on Ireland's Eye, and on dry cliffs at the Gap of Dunloe, near Killarney. Near Headford, County of Galway; *Mr. Shuttleworth. Fl.* June, July. ♃.—*Stem* zigzag, from six inches to two feet high, mostly glaucous. *Leaflets* small. *Fruit* narrow, ovate, sulcate.

3. T. *majus*, Jacq. *Greater Meadow-Rue.* Leaves 3—4 pinnate; leaflets roundish glabrous, trifid, and toothed, glaucous beneath; panicle diffuse, its branches whorled, ultimate pedicels often umbellate; flowers mostly drooping. *Br. Fl.* 1. *p.* 263. *E. Fl. v.* iii. *p.* 42. *E. Bot. t.* 611.

Stony places, among loose rocks at the base of the mountain, at the ascent from Kilkeel to Slieve-Donard, in company with Mr. Templeton and Dr. Stokes, in 1808. Near Headford, County of Galway, in 1832; *Mr. Shuttleworth. Fl.* June. ♃.—From a foot and a half to three feet high, of a much more robust habit than the last. *Leaves* broader and dark green above.

4. T. *flavum*, Linn. *Common Meadow-Rue.* Stem erect, branched, furrowed; leaves bipinnate; leaflets broadly obovate, or wedge shaped, trifid; panicle compact, subcorymbose; flowers erect. *Br. Fl.* 1. *p.* 263. *E. Fl. v.* iii. *p.* 42. *E. Bot. t.* 367.

Banks of rivers and ditches. Marsh in Sir Robert Staples' woods, Queen's County, and Glencree, County of Wicklow. Frequent in meadows near the Blackwater, County of Armagh; *Mr. Campbell*, Curator of the Belfast Botanic Garden. County of Derry; *Mr. D. Moore. Fl.* June, July. ♃.—*Flowers* very numerous, yellow. Lobes of the *leaves* varying in breadth.

3. Anemone. *Linn.* Anemone.

Involucre of three cut leaves distant from the flower. *Sepals* and *petals* 5—15 in number, coloured, passing gradually into each other, so that they cannot be distinguished. Named from *ανεμοσ*, the *wind;* because many of the species grow in very exposed situations. *Polyandria. Polygynia.*

1. A. *nemorosa,* Linn. *Wood Anemone.* Leaves ternate; leaflets lanceolate, lobed and cut; involucre similar to them, petiolate; stem single-flowered; sepals 6, elliptical; pericarps awnless. *Br. Fl.* 1. *p.* 264. *E. Fl. v.* iii. *p.* 36. *E. Bot. t.* 355.

β. Whole plant much larger, especially the flower, which is of a deep reddish colour.

Moist woods, and on wet banks by the side of mountain rivulets: Dargle and Powerscourt woods abundant. In moist banks in most of the narrow sheltered glens through the Dublin and Wicklow mountains. β. Found by Doctor Harvey, in large quantity, by the river Lee, near Dunscombe's Wood, along with the common variety; presenting a very striking contrast. *Fl.* April, May. ♃.—*Flowers* white, tinged with purple on the outside.

2. A. *apennina,* Linn. *Blue mountain Anemone.* Leaves triternate; segments lanceolate, cut and toothed; involucres petiolate, ternate and cut; sepals—12—14; pericarps without awns. *Br. Fl.* 1. *p.* 264. *E. Fl. v.* iii. *p.* 36. *E. Bot. t.* 355.

Rare, and probably not indigenous. This beautiful plant was observed by the late *Mr. Underwood,* above thirty years ago, growing in shady spots near the ground now occupied by the Glasnevin Botanic Garden, where it had probably been introduced. *Fl.* April. ♃.—*Flowers* light and bright blue.

4. Ranunculus. *Linn.* Crowfoot.

Calyx of 5 sepals, which are not elongated at the base. *Petals* 5—10 with a nectariferous scale at the base. *Stamens* numerous. *Pericarps, (Cariopsides)* ovate, somewhat compressed, ending in a short horn or mucro, arranged in a globose or cylindrical head. *Roots* fascicled. Name from *Rana,* a *Frog;* from the plants' delighting to grow where frogs abound. *Polyandria. Polygynia.*

* *Pericarps transversely wrinkled. Petals white.*

1. R. *aquatalis,* Linn. *Water Crowfoot.* Stem submersed; leaves capillaceo-multifid; floating ones 3-parted, their lobes cut; petals obovate larger than the calyx; *pericarps* glabrous or hispid. *Br. Fl.* 1. *p.* 265. *E. Fl. v.* iii. *p.* 54. *E. Bot. t.* 101.

β. Leaves wholly in capillary segments. *R. pantothrix, De Cand.*

γ. All the leaves sessile, orbicular in their circumscription, deeply cut into fine capillary segments. *R. circinnatus, Sibth.—R. cæspitosus, De Cand.*

Lakes, ditches, and rivers abundant. *Fl.* May, June. ♃.—Very variable in the length of its *stems* and form of its *leaves*, according to the depth and stillness of the water.

2. R. *hederaceus*, Linn. *Ivy leaved Crowfoot.* Stem creeping; leaves roundish kidney-shaped with 3—5 rounded entire lobes; petals small, scarcely longer than the calyx; stamens 5—10; pericarps glabrous. *Br. Fl.* 1. *p.* 265. *E. Fl. v.* iii. *p.* 54. *E. Bot. t.* 2003.

Wet places, shallow pools, and where water has stood throughout the summer. *Fl.* May—Aug. ♃.

* * *Pericarps not transversely wrinkled. Nectary with a small scale. Fl. yellow.*

† *Leaves undivided.*

3. R. *Lingua*, Linn. *Great Spear-wort.* Leaves lanceolate, subserrated, sessile, semiamplexicaul; stem erect, glabrous. *Br. Fl.* 1. *p.* 265. *E. Fl. v.* iii. *p.* 46. *E. Bot. t.* 100.

Sides of lakes and rivers; not very common. On the margin of a lake in Lord Oriel's demesne at Collon; banks of Lough Erne, in various places; Lough Eske, near Donegal, and by the banks of the river Fergus, a little above the bridge of Ennis. In several small lakes near Ecklinville, County of Down; *Mr. Campbell. Fl.* July. ♃.—*Stem* 2—3 feet high. *Flowers* large, handsome.

4. R. *Flammula*, Linn. *Lesser Spear-wort.* Leaves linear-lanceolate, nearly entire, petiolate; the lower ones ovate-lanceolate; stem declined at the base and rooting. *Br. Fl.* 1. *p.* 265. *E. Fl. v.* iii. *p.* 45. *E. Fl. Bot. t.* 387.

Sides of lakes and ditches, abundant. *Fl.* July, Aug. ♃.

5. R. *Ficaria*, Linn. *Pilewort Crowfoot.* Leaves cordate, petiolate, angular, or crenate; calyx of 3 sepals; petals 9. *Br. Fl.* 1. *p.* 266. *E. Fl. v.* iii. *p.* 45. *E. Bot. t.* 387.—*Ficaria ranunculoides*, *De Cand.*

Pastures, woods, and bushy places. *Fl.* April, May. ♃.—*Root* consisting of many large fasciculated *tubers*. *Leaves* petiolate, 2—3 on the 1-flowered stem. *Flowers* glossy, yellow.

† † *Leaves divided. Pericarps smooth.*

6. R. *auricomus*, Linn. *Wood Crowfoot.* Leaves glabrous; radical ones reniform, 3-parted and cut; stem-leaves divided to the base into linear subdentate segments; calyx pubescent shorter than the petals; head of fruit globose. *Br. Fl.* 1. *p.* 26. *E. Fl. v.* iii. *p.* 47. *E. Bot. t.* 624.

Woods and coppices, not unfrequent. *Fl.* April, May. ♃.—*Stem* a foot high, branched, leafy. Radical *leaves* on long petioles, sometimes simply kidney-shaped. *Flowers* terminal, solitary, bright yellow.

7. R. *sceleratus*, Linn. *Celery-leaved Crowfoot.* Leaves gla-

brous; radical ones petiolate, tripartite; lobes cut, very obtuse; upper ones in 3-linear, cut segments; calyx glabrous; pericarps collected into an oblong head. *Br. Fl.* 1. *p.* 266. *E. Fl. v.* iii. *p.* 48. *E. Bot. t.* 681.

Sides of pools and ditches, frequent. *Fl.* June. ♃.—*Stem* stout, succulent, 1—2 feet high. Lower *leaves* very broad and glossy. *Flowers* extremely small, pale yellow.

8. R. *acris*, Linn. *Upright Meadow Crowfoot.* Calyx spreading; peduncles rounded, not furrowed; leaves 3-parted, their segments acute, trifid and cut; upper ones linear. *Br. Fl.* 1. *p.* 266. *E. Fl. v.* iii. *p.* 51. *E. Bot. t.* 652.

Meadows and pastures, common. *Fl.* June, July. ♃.—Stem two feet high, branched in the upper part, many flowered; segments of the *leaves* pointed, becoming narrow from the root upwards. *Flowers* large, bright yellow.

9. R. *repens*, Linn. *Creeping Crowfoot.* Calyx spreading; flower-stalks furrowed; scyons creeping; leaves with 3 petiolated leaflets which are 3-lobed, or 3-parted and cut. *Br. Fl.* 1. *p.* 266. *E. Fl. v.* iii. *p.* 49. *E. Bot. t.* 515.

Pastures, too frequent. *Fl.* June—Aug. ♃.—Well distinguished by its creeping scyons.

10. R. *bulbosus*, Linn. *Bulbous Crowfoot.* Calyx reflexed; peduncles furrowed; stem upright, many flowered; leaves cut into 3 petiolated leaflets, which are 3-lobed or 3-parted and cut; root bulbous. *Br. Fl.* 1. *p.* 267. *E. Fl. v.* iii. *p.* 49. *E. Bot. t.* 515.

Meadows and pastures, common. *Fl.* May. ♃.—One foot high, hairy. Lobes of the lower *leaves* subovate; upper leaves cut into linear segments.

† † † *Leaves divided. Pericarps tuberculated or muricated. Annual.*

11. R. *hirsutus*, Curt. *Pale hairy Crowfoot.* Calyx reflexed; stem erect, many-flowered, hairy; leaves 3-lobed, or 3-parted; lobes obtuse, cut; root fibrous; pericarps margined and tuberculated. *Br. Fl.* 1. *p.* 267. *E. Fl. v.* iii. *p.* 50. *E. Bot. t.* 1501.

Rare in Ireland; moist grounds on Galtymore, County of Tipperary, and at the base of Magilligan rocks, County of Derry. *Fl.* Oct. ⊙.—*Stem* one foot or more high, upright, more or less branched, leafy, round, hollow, rough, with spreading rigid hairs.

12. R. *arvensis*, Linn. *Corn Crowfoot.* Calyx spreading; stem erect, many flowered; leaves 3-cleft, their lobes generally again 3-cleft into linear entire or bi-tridentate segments; pericarps muricated. *Br. Fl.* 1. *p.* 267. *E. Fl. v.* iii. *p.* 52. *E. Bot. t.* 135.

Corn fields on the lands of Beldrummond near the Man-of-War in a stiff soil. *Fl.* June. ⊙.—*Pericarps* very large and prickly. *Flowers* small, pale yellow.—Said to be extremely poisonous and injurious to the cattle in some countries.

13. R. *parviflorus*, Linn. *Small flowered Crowfoot.* Stem spreading; leaves hairy, 3-lobed and cut; peduncles opposite the leaves; calyx as long as the petals; pericarps muricated. *Br. Fl.* 1. *p.* 267. *E. Fl. v.* iii. *p.* 53. *E. Bot. t.* 120.

Corn fields between Baldoyle and Howth. Near Carrigrohan Castle, County of Cork; *Mr. J. Drummond.* *Fl.* May, June. ⊙.—Well distinguished by its spreading *stems*, lateral *flower-stalk*, and small narrow *petals*, one or two often wanting.

5. TROLLIUS. *Linn.* Globe-flower.

Calyx coloured of 5—10—15 sepals, which are deciduous and petaloid. *Petals* 5—10, small, tubular at the base, one lipped. *Stamens* and *ovaries* numerous. *Follicles* numerous, sessile, subcylindrical, many-seeded.—*Upright* herbaceous plants, with *palmate* multifid leaves and fascicled roots.—Name, said to be "derived from *trol* or *trolen*, a *ball* or *globe* in old German, and bearing the same meaning as our English word *Globe-flower*. *Polyandria. Polygynia.*

1. T. *europæus*, Linn. *Mountain Globe-flower.* Calyx of about 15-concave sepals; petals the same length of the stamens. *Br. Fl.* 1. *p.* 267. *E. Fl. v.* iii. *p.* 56. *E. Bot. t.* 28.

Moist mountain pastures. County of Donegal; *Mr. Templeton.* Convoy and Lough Garton, in same county; *Mr. E. Murphy.* *Fl.* June, July. ♃.—*Leaves* in five, deep segments, which are again cut and serrated. *Flowers* large, handsome.

6. CALTHA. *Linn.* Marsh-marigold.

Calyx and *petals* 5 in number, undistinguishable from each other, coloured. *Ovaries* 5—10. *Follicles* 5—10, compressed, spreading, many-seeded.—*Perennial very smooth* herbaceous *plants.*—Name from Καλαθος, a *cup*, which its flowers resemble. *Polyandria. Polygynia.*

1. C. *palustris*, Linn. *Common Marsh-marigold.* Leaves orbicular-cordate, or reniform, crenate; sepals 5—6, oval. *Br. Fl.* 1. *p.* 268. *E. Fl. v.* iii. *p.* 59. *E. Bot. t.* 506.

β. Stem creeping; leaves cordate-triangular, sharply crenate. *Hook. Scot.* 1. *p.* 176.—*C. radicans, Forst.*—*E. Bot. t.* 2175. *E. Fl. v.* iii. *p.* 60.

Marshy places and ditches, common. *β.* On the side of the Bann river, near Portadown; *Mr. Templeton.* *Fl.* March—June. ♃.—*Stem* about a foot high, hollow, branched. *Flowers* large, yellow.

7. HELLEBORUS. *Linn.* Hellebore.

Calyx of 5 persistent *sepals.* *Petals* 8—10, small, tubular, 2-lipped, nectariferous. *Pericarps* or *follicles* nearly erect, many-seeded.—Name, ελειν, to *injure*, and βορα, *food*, from the poisonous nature of the plant. *Polyandria. Polygynia.*

1. H. *viridis*, Linn. *Green Hellebore.* Stem few-flowered, leafy; leaves digitate; calyx spreading. *Br. Fl.* 1. *p.* 268. *E. Fl. v.* iii. *p.* 57. *E. Bot. t.* 200.

A specimen in the herbarium, left by Mr. J. Drummond at the Cork institution, was found by him near Cork. The late Doctor Wade states that it was found sparingly on rocky and copsy pasture ground at Drummartin, near Dundrum, but I have not seen Irish specimens. *Fl.* April, May. ♃.—The *H. fœtidus*, which is very common in gardens, has not been found in a wild state in Ireland.

8. AQUILEGIA. *Linn.* Columbine.

Calyx of 5 sepals, deciduous, petaloid. *Petals* 5, gaping upwards; their upper lip large and flat; their lower very small, each elongated downwards into a hollow spur, callous at the apex, and projecting between the sepals. *Ovaries* 5. *Follicles* the same number, erect, many-seeded, pointed by the styles.—Named from *Aquila*, an *Eagle*, whose claws the nectaries resemble. *Polyandria. Pentagynia.*

1. A. *vulgaris*, Linn. *Common Columbine.* Spur of the petals incurved; capsules or ovaries hairy; stem leafy, many-flowered; leaves nearly glabrous; styles as long as the stamens. *Br. Fl.* 1. *p.* 261. *E. Fl. v.* iii. *p.* 33. *E. Bot. t.* 97.

Woods and coppices in several places; probably often the outcast of gardens. *Fl.* June. ♃.—Found plentifully on Knockmaroon hill, in 1804, (before it was so much broken up, as it now is, for strawberry beds,) growing among furze bushes. In a furze brake at the upper end of Duncombe's Wood, near Cork; *Mr. J. Drummond.* On limestone rocks and pastures, between Headford and Cong, in a truly wild state; *Mr. J. Shuttleworth.* Abundant on the shore of Lough Neagh, near Salterstown; *Mr. D. Moore.* My specimens from Mr. Shuttleworth have the flowers of a light blue, which is the general colour in its wild state. In gardens it varies very much in the colour of its flowers, and often becomes double; when the spurs of the petals disappear.

ORD. 2. BERBERIDEÆ. *Vent.* Barberry Family.

Sepals 3—4—6, deciduous, in a double series, accompanied by scales. Petals equal in number with the sepals and opposite to them, rarely twice as many, often furnished with a gland or scale within. Stamens as many as there are petals, and opposite to them: filaments short; anthers oblong, adnate, 2-celled, opening by valves. Ovary solitary, 1-celled; style very short, oblique; stigma suborbicular. Fruit baccate or capsular; seeds 1—3. Albumen fleshy or somewhat horny; embryo straight, in the axis of the albumen. Radicle inferior. Cotyledons plane.—*Shrubs or herbs, with perennial roots, mostly glabrous. Inhabitants of temperate or cold climates, in both hemispheres.*

The berries of Berberis vulgaris and other species are acid and astringent, and form with sugar an agreeable refreshing preserve. Their acid is the oxalic.

1. Berberis. *Linn.* Barberry.

Sepals 6, in a double row, externally scaly. *Petals* 6, with two glands at the base of each. *Fruit* fleshy 1-celled, 2—3-seeded. *Shrubs* with spiny stems and leaves, and yellow racemose flowers.—Name; *Berberys*, according to Theis, is the Arabic name of this fruit. *Hexandria. Monogynia.*

1. B. *vulgaris*, Linn. *Common Barberry.* Racemes pendulous; spines 3-forked; leaves obovate with bristly serratures. *Br. Fl.* 1. *p.* 150. *E. Fl. v.* iii. *p.* 184. *E. Bot. t.* 49.

Frequent in hedges at Ballyarthur, near Fermoy; *Mr. J. Drummond. Fl.* June. ♃.—*Shrub* with upright twiggy stems. *Flowers* yellow, smelling disagreeable. *Stamens* highly curious in their formation and in their elastic property when touched. *Berries* oblong, a little curved, red, tipped with the black style: they are agreeably acid, and much used for preserves, particularly the stoneless variety. The leaves and young shoots are very subject to mildew.

Ord. 3. NYMPHÆACEÆ. *D C.* Water-Lily Family.

Sepal 4—6, coloured within, often passing into the petals, which are numerous, and arranged in several series. Stamens numerous, in many series, inserted, as well as the perianth, on a more or less enlarged portion of the receptacle; filaments often petaloid; anthers adnate, 2-celled, opening longitudinally. Ovaries, or carpels, 8—24, half immersed in the enlarged foveolated receptacle, (Nelumbium), or entirely included in an urceolate (resembling a solitary ovarium or carpel), 1-styled, membranaceous, indehiscent, 1—2—or many-seeded. Styles, in the free ovaries, distinct with a simple stigma; in the included carpels combined with the stigmas, adnate at their base, and radiating (as in *Papaver*); seeds in the former 2 or 1, in the latter very numerous, fixed to the sides of the carpels, covered by a gelatinous arillus; the cells filled with gelatine in maturity. Albumen farinaceous, none in *Nelumbium.* Embryo minute, somewhat terminate, on the outside of the albumen, and included in a membranous bag.—*Aquatic herbs, with peltate or cordate leaves, and splendid flowers.*

1. Nymphæa. *Linn.* White Water-Lily.

Sepals 4. *Petals* and stamens numerous, inserted into a disk which surrounds the sides of ovarium, and adheres to it.

Stigmata radiating.—Name; the Νυμφαια of the Greeks, so called from its inhabiting the waters, as the Nymphs or Naiads were wont to do. *Polyandria. Monogynia.*

1. N. *alba*, Linn. *Great White Water-Lily.* Leaves cordate; stigma of 16, ascending rays. *Br. Fl.* 1. *p.* 260. *E. Fl. v.* iii. *p.* 14. *E. Bot. t.* 160.

Lakes and still waters, frequent. Lough Dan and Glandelough, County of Wicklow; lakes near Killarney, and in Cunnamara; lakes at Farnham and elsewhere in Cavan, very abundant. Not unfrequent in the northern countries. *Fl.* June, July. ♃.—*Leaves* floating, a span broad. *Flowers* splendid, white. In Cunnamara the roots are used for dying wool black.

2. Nuphar. *Smith.* Yellow Water-Lily.

Sepals 5—6. *Petals* 10—18, inserted along with the numerous stamens into a disk which surrounds the base of the ovarium. *Stigma* radiating. *De Cand.*—Name the Νουφαρ of Dioscorides, given to this plant. The Arabic name is Noufar according to Forskal. *Polyandria. Monogynia.*

1. N. *lutea*, Linn. *Common Yellow Water-Lily.* Leaves cordate, their lobes approximate; calyx of 5 leaves; stigma expanded, entire, with from 14—20, rays. *Br. Fl.* 1. *p.* 260. *E. Fl. v.* iii. *p.* 15. *Nymphæa lutea, Linn. E. Bot. t.* 159.

Lakes and ditches, frequent; all over the country. *Fl.* July. ♃. *Leaves* heart-shaped, floating. *Peduncles* round. *Flowers* about two inches wide, yellow in every part. *Calyx leaves* much larger than the petals, which are small.

Ord. 4. PAPAVERACEÆ. *Juss.* Poppy Family.

Sepals 2, deciduous. Petals 4, rarely 8—12 or wanting, irregularly plaited before expansion. Stamens distinct, usually numerous: filaments filiform; anthers 2-celled, opening longitudinally. Ovary 1, free. Style short or none, bearing as many stigmas as there are placentæ, alternate with them and arranged, when many, in a stellated manner. Fruit 1-celled, siliquiform, with 2 placentæ, or a capsule with several parietal placentæ, and often opening by pores beneath the stigma. Albumen fleshy and oily. Embryo minute, at the base of the albumen, with plano-convex cotyledons.—*Annual or perennial herbs or undershrubs, abounding in narcotic juice. Root fibrous. Leaves alternate, simple or lobed. Peduncles elongated, single-flowered. Flowers white, yellow or red, never blue.*

The plants of this order afford a narcotic juice. Opium is prepared from Papaver somniferum, but the seeds of the plant are mild and stimulent, yielding an oil which is sold as an article of food.

1. Papaver. *Linn.* Poppy.

Sepals 2, convex. *Petals* 4. *Stamens* numerous. *Style* none. *Stigmata* 4—10, radiating, sessile, on the top of the ovarium. *Capsule* 1-celled, dehiscing by minute valves, concealed beneath the projecting rim of the top. *Placentæ* projecting into the cavity, and forming incomplete dissepiments.—*Herbaceous* plants, *with divided* leaves and *white milky juice, the* peduncles *inflexed before flowering.*—Name given because it was used with *pap, papa,* in Celtic, to induce sleep.
Polyandria. Monogynia.

* *Capsules bristly.*

1. P. *hybridum*, Linn. *Round rough-headed Poppy.* Capsule subglobose, hispid, furrowed; stem leafy, many-flowered; leaves doubly pinnatifid. *Br. Fl.* 1. *p.* 255. *E. Fl. v.* iii. *p.* 9. *E. Bot. t.* 43.

Sandy fields, rather rare. Kilbarrick Church and near Baldoyle. *Fl.* July. ⊙.—*Stem* 12—18 inches high, rather rough; segments of the *leaves* numerous, linear lanceolate. *Flowers* rather small, crimson. *Pollen* blue.

2. P. *Argemone*, Linn. *Long prickly-headed Poppy.* Capsule clavate, hispid, ribbed; stem leafy, many-flowered; leaves bipinnatifid. *Br. Fl.* 1. *p.* 255. *E. Fl. v.* iii. *p.* 10. *E. Bot. t.* 643.

Corn fields in sandy grounds. *Fl.* June. ⊙.—Near Kilbarrick Church, and old gravel pits near Ball's Bridge.

* * *Capsules smooth.*

3. P. *dubium*, Linn. *Long smooth-headed Poppy.* Capsules glabrous, oblong; stem many-flowered hairy; bristle of the flower-stalk appressed; leaves pinnatifid. *Br. Fl.* 1. *p.* 255. *E. Fl. v.* iii. *p.* 10. *E. Bot. t.* 644.

Corn fields, not unfrequent. *Fl.* July. ⊙.—*Stem* 1—2 feet high, hispid with spreading hairs. *Flowers* large. *Petals* broad, palish-scarlet.

4. P. *Rhæas*, Linn. *Common red Poppy.* Capsules glabrous nearly globose: stem many-flowered, bristly, its bristle and those of the flowerstalk spreading; leaves pinnatifid. *Br. Fl.* 1. *p.* 555. *E. Fl. v.* iii. *p.* 11. *E. Bot. t.* 645.

Abundant in corn fields. *Fl.* June, July. ⊙.—Sandy fields, near Kilbarrick, with the two last. Distinguished from the last by its short *capsule* and the spreading hairs of its footstalks. *Petals* broad, deep scarlet. The double French Poppy of the gardens, so much admired, is a variety of this.

5. P. *somniferum*, Linn. *White Poppy.* Capsule globose,

glabrous, as well as the stem and glaucous amplexicaul leaves. *Br. Fl.* 1. *p.* 256. *E. Fl. v.* iii. *p.* 11. *E. Bot. t.* 2145.

Abundant near Kilbarrick Church, and fields on the west side of the Hill of Howth, with purple flowers. *Fl.* July. ⊙.—The garden varieties of this species, both single and double, vary much in the colour of their flowers. The large white poppy, from which opium is obtained, (the Papaver album of the shops,) is probably the type of all the others.

2. MECONOPSIS. *De Cand.* Welsh Poppy.

Sepals 2. *Petals* 4. *Stamens* numerous. *Style* short. *Stigmas* 4—6, radiating, convex, distinct. *Capsule* 1-celled, dehiscing by 5—6 valves at the top. *Placentæ* narrow, scarcely projecting.—Perennials, with yellow juice. *De Cand.*—Name from μηκων a Poppy, and οψις a resemblance.

Polyandria. Monogynia.

1. M. *cambrica*, De Cand. *Common Welsh-Poppy.* Capsules glabrous; leaves mostly petiolate.—*Papaver cambricum*, *Linn.*—*Br. Fl.* 1. *p.* 256. *E. Fl. v.* iii. *p.* 66. *E. Bot. t.* 66.

In the crevices of rocks by the side of the stream on Rostrevor hill, and on the limestone cliffs of Ben Bulben; also on the hill above Clifdon, Cunnamara. *Fl.* June. ♃.—*Plant* glabrous. *Leaves* on long footstalks, pinnate, the pinnæ pinnatifid. *Flowers* large, yellow. A genus, as De Candolle observes, between *Papaver* and *Argemone.*

3. GLAUCIUM. *Juss.* Horned-Poppy.

Petals 4. *Stamens* numerous. *Pod* long, 2-valved, with the placentæ meeting in the middle, and forming a spongy dissepiment, which divides the cavity of the pod into two cells. *Seeds* destitute of a crest,—Biennials, *with glaucous, scabrous, pinnatifid* leaves, and yellow milky juice.—Named from the *glaucous* or sea green hue of the stems and leaves.

Polyandria. Monogynia.

1. G. *luteum*, Linn. *Yellow Horned-Poppy.* Pod minutely tuberculated; cauline leaves amplexicaul sinuate; stem glabrous *Br. Fl.* 1. *p.* 256. *E. Fl. v.* iii. *p.* 6. *E. Bot. t.* 8.—*Chelidonium Glaucium, Linn.*

Sandy sea shores, frequent. *Fl.* July, Aug. ⊙.—1—2 feet high, very glaucous, much branched. *Leaves* scabrous. *Flowers* very large, handsome, succeeded by pods 6—10 inches long. *Dissepiment* spongy.

4. CHELIDONIUM. *Linn.* Celandine.

Sepals 2, smooth. *Petals* 4. *Stamens* numerous. *Pod* long 2-valved; the placentæ not connate; the valves opening from bottom to top. *Seeds* crested.—*Herbaceous* plants, with

smooth, brittle, tender leaves, and an acrid yellow juice.—Named from χελιδων, a *swallow;* probably from the plant flowering at the time of the arrival of those birds.
Polyandria. Monogynia.

1. C. *majus*, Linn. *Common Celandine. Br. Fl.* 1. *p.* 257. *E. Fl. v.* iii. *p.* 4. *E. Bot. t.* 1581.

Waste places, especially near towns and villages. *Fl.* May, June. ♃.—Plentiful on hedge banks by the way side near Dundalk, and other places in the County of Louth. About two feet high, slightly hairy, brittle, full of yellow fœtid juice. *Leaves* pinnatifid, with about five decurrent leaflets, which are broadly ovate, lobed, and crenated. *Flowers* in long stalked *umbels*, yellow, rather small. *Pod* long, somewhat turgid.

ORD. 5. FUMARIACEÆ. *D.C.* Fumitory Family.

Sepals 2, small, deciduous. Petals 4, irregular, more or less united below; 2 exterior, alternating with the sepals; one, the upper, or both, gibbous, or prolonged at the base into a spur; 2 inner somewhat callous at the extremity, where they cohere and enclose the anthers and stigma. Stamens 6: filaments diadelphous, opposite the outer petals; anthers 6, small, the middle one of each bundle 2-celled, the lateral ones 1-celled. Ovary one, free; style filiform; stigma bilamellate. Fruit siliquiform, 2-valved, many-seeded, somewhat indehiscent, 1—2 seeded. Seeds affixed to lateral placentæ, with an arillus or caruncle. Albumen fleshy, including the embryo in its base. Cotyledons plane.—*Delicate herbs, of temperate latitudes, slightly bitter and diaphoretic, containing a watery, not milky juice. Flowers purple, white or yellow.*

1. CORYDALIS. *De Cand.* Corydalis.

***Petals* 4, of which one is calcarate at the base. *Pod* 2-valved, compressed, many-seeded. *De Cand.*—Name from χορυδαλις, the Greek name for the *Fumitory*, with which the present genus was, till lately, united.** *Diadelphia Hexandria.*

1. C. *claviculata.* De Cand. *White climbing Corydalis.* Stem much branched, climbing; leaves pinnate; pinnæ stalked, ternate, or pedate; leaflets elliptical, entire; petioles ending in tendrils, pedicels very short, scarcely so long as the minute bracteas. *Fumaria claviculata, Linn. Br. Fl.* 1. *p.* 316. *E. Fl. v.* iii. *p.* 254. *E. Bot. t.* 103.

Rocks, walls, and on tops of old thatched houses. On thatched cabins between Ballinteer and the little Dargle, and way-side between Dundrum and the Dublin mountains. *Fl.* June, July. ⊙.—*Stems* long, very slender. Whole plant very delicate. *Flowers* small, pale yellow, almost white.

2. FUMARIA. *Linn. De Cand.* Fumitory.

Petals 4, the 3 upper connate at the base, the intermediate one being saceate. *Fruit* indehiscent, monospermous, not pointed by the style. *De Cand.*—Name from *fumus, smoke,* it is said, on account of the smell. *Diadelphia. Hexandria.*

1. F. *capreolata,* Linn. *Ramping-Fumitory.* Calycine leaves broadly oval, scarcely acute, toothed at the base, entire, above twice as long as the globose fruit; bracteas a little shorter (about one-third) than the fruit-bearing pedicel. *Br. Fl.* 1. *p.* 316. *E. Fl. v.* iii. *p.* 256. *Arn. E. Bot. t.* 943.

Corn fields and waste grounds. Fields near Kilbarrick Church. Gravel pits near Ball's Bridge. *Fl.* May, Aug. ⊙.—A very variable plant. *Stems* generally climbing, sometimes only diffuse. *Leaves* bipinnate. *Leaflets* usually very broad. Best distinguished by its large *petals* and *calycine leaves.*

2. F. *officinalis,* Linn. *Common Fumitory.* Calycine leaflets ovato-lanceolate, acute, sharply toothed, scarcely so long as the globose, very abrupt, or obcordate fruit; bracteas 2 or 3 times shorter than the fruit-bearing pedicel. *Br. Fl.* 1. *p.* 317. *E. Fl. v.* iii. *p.* 255. *E. Bot. t.* 589.

In dry fields and road sides, common; also frequent in highly cultivated fields and gardens, when it becomes more diffuse or climbing. *Fl.* throughout the summer. ⊙.

3. F. *parviflora,* Lam. *Small-flowered Fumitory.* Calycine leaves very minute; fruit globose, slightly pointed; bracteas at first as long as the flower, afterwards about as short as the fruit-bearing pedicel; leaflets linear, channelled. *Arnott. Br. Fl.* 1. *p.* 317. *E. Fl. v.* iii. *p.* 256. *E. Bot. t.* 590.

Cape Clear Island; *Mr. J. Drummond. Fl.* Aug. Sept. ⊙.—*Flowers* rose coloured. *Leaves* of a lively or yellowish green.

ORD. 6. CRUCIFERÆ. *Juss.* Cruciferous Family.

Sepals 4, deciduous, two often gibbous at the base. Petals 4, cruciate, alternate with the sepals, unguiculate, rarely unequal. Stamens 6, tetradynamous, two solitary, shorter, opposite the lateral sepals, 4 longer in pairs, alternating with them, distinct, rarely combined at the base, sometimes with a tooth. Ovary 2-celled and style single: green glands at the base of the germen and stamens. Stigmas 2, opposite the placentæ. Fruit a siliqua or silicula, 2, rarely 1-celled, 2-valved, the valves separating from the placentæ, rarely valveless, 1—or many-seeded. Seeds pendulous, without albumen. Embryo curved upwards towards the margins of the Cotyledons (○=), or against the back of one of them (○ ||), opposite to the hilum.—*Herbaceous,* *rarely suffruticose plants. Leaves alternate. Flowers in corymbs or racemes.*

The universal character of Cruciferæ is to possess antiscorbutic and stimulent qualities, combined with an acrid flavour.

SUBORDER PLEURORHIZEÆ. *De Cand.* O=

Cotyledons flat, accumbent. Radicle lateral. Seeds compressed.

Tribe I. *Arabideæ.* De Cand.

Siliqua dehiscent; septum linear, somewhat broader than the seeds. Seeds oval, compressed, often bordered. Cotyledons flat, accumbent, parallel with the septum. *De Cand.*

1. MATTHIOLA. *R. Brown.* Stock.

Pod rounded or compressed, crowned with the connivent, two lobed *stigma*, the lobes either thickened at the back, when the *cotyledons* are incumbent (O ||), or with a point at the base. *Cal.* erect. Longer *filaments* dilated. *Br.*—Named in honour of an Italian Physician, *Peter Andrew Matthioli.*
Tetradynamia. Siliquosa.

1. M. *sinuata*, Br. *Great Sea Stock.* Stem herbaceous, spreading; leaves downy, lower ones sinuated; pods compressed muricated. *Br. Fl.* 1. *p.* 307. *E. Fl. v.* iii. *p.* 205.—*Cheiranthus sinuatus, Linn.*—*E. Bot. t.* 462.

In a small island called Straw Island, near the largest island of Arran, 1805. *Fl.* May—Aug. ♂.—*Flowers* purple, large, fragrant at night.

2. CHEIRANTHUS. *Linn.* Wall-flower.

Pod compressed or two-edged. *Cotyledons* accumbent (O=). *Cal.* erect, opposite leaflets saccate at the base. *Stigma* placed on a *style*, two-lobed, the lobes patent or capitate. *Br.*—Name from the Arabic *Kheyry*, not however originally applied to this genus. *Tetradynamia. Siliquosa.*

1. C. *Cheiri.* Linn. *Common Wall-flower.* Leaves lanceolate, acute, entire, with bipartite appressed hairs; pods linear; lobes of the stigma patent; stem shrubby.—*Hook. in Fl. Lond. N. S. t.* 147.—*Br. Fl.* 1. *p.* 307.—*Cheiranthus fruticulosus, Linn. Mant.*—*E. Fl. v.* iii. *p.* 203. *E. Bot. t.* 1934.

Old walls and ruins. *Fl.* April, May. ♂.—A *variety*, with larger, more highly coloured, and more flaccid *petals*, is commonly cultivated in gardens, of which the *double bloody wall-flower* is a variety.

3. NASTURTIUM. *Br.* Cress.

Pod nearly cylindrical, sometimes short. *Valves* concave, neither nerved nor keeled. *Cotyledons* accumbent, (O=). *Cal.* patent. *Br.*—Name from *Nasus tortus,* a *convulsed nose,* an effect supposed to be produced by the acrid and pungent quality of this plant. *Tetradynamia. Siliquosa.*

1. N. *officinale,* Br. *Water Cress.* Leaves pinnate, ovate, subcordate, sinuato-dentate. *Br. in Hort. Kew. ed.* 2. *v.* iv. *p.* 110. *Hook. Br. Fl.* 1. *p.* 304. *E. Fl. v.* iii. *p.* 92.—*Sisymbrium Nasturtium, Linn.*—*E. Bot. t.* 855.

Brooks and rivulets, frequent. *Fl.* July. ⊙.—A well known aquatic, and an excellent and wholesome salad. *Lower-leaves* of 5—7 distant *leaflets,* the terminal one the largest and roundest; *cauline-leaflets* subovate; all rather succulent, glabrous, more or less curved, or toothed. *Flowers* white. *Pods* about an inch long, patent.

2. N. *sylvestre,* Br. *Creeping Nasturtium.* Leaves pinnate; leaflets lanceolate, cut, those on the uppermost leaves entire. *Br. in Hort. Kew. ed.* 2. *v.* iv. *p.* 110. *Br. Fl.* 1. *p.* 305. *E. Fl. v.* iii. *p.* 193.—*Sisymbrium sylvestre, Linn.*—*E. Bot. t.* 1. *p.* 2324.

Water sides and waste places. Banks of Lough Erne; *Doctor Scott.* Killikeen, County of Cavan; *Rev. N. J. Halpin. Fl.* July, Aug. ♃.—*Roots* much creeping. *Stem* one foot high, angular, branched. *Flowers* yellow. *Petals* much longer than the *calyx. Pods* short, patent, or curved a little upwards.

3. N. *terrestre,* Br. *Marsh Nasturtium.* Leaves lyrato-pinnatifid unequally toothed, glabrous; root simply fibrous; petals not longer than the calyx. *Br. in Hort. Kew. ed.* 2. *v.* iv. *p.* 110. *Br. Fl.* 1. *p.* 305. *E. Fl. v.* iii. *p.* 193.—*Sisymbrium terrestre, Linn.*—*E. Bot. t.* 1747.

Watery places. Low wet grounds between Mark's Church and Ringsend, and elsewhere near Dublin, and other places, plentiful. *Fl.* June—Sept. ⊙.

4. N. *amphibium,* Br. *Amphibious Nasturtium.* Leaves oblong, pinnatifid or serrated; root simply fibrous; petals longer than the calyx. *Br. in Hort. Kew. ed.* 2. *v.* iv. *p.* 100. *Br. Fl.* 1, *p.* 305. *E. Fl. v.* iii. *p.* 195.—*Sisymbrium amphibium, Linn.*—*E. Bot. t.* 1840.

Watery places, frequent. By the side of the pond opposite to the Zoological Gardens, Phœnix Park. Banks of Lough Erne; *Dr. Scott. Fl.* June—Aug. ♃.—Two or three feet high, branched. If any leaves grow under the water, they are deeply pinnatifid, otherwise deeply serrated. *Pods* short, small, roundish, generally abortive.

4. BARBAREA. *Br.* Winter Cress.

Pod 4-angled, and sometimes two-edged. *Cotyledons* accumbent (O=). Seeds in a single row. *Calyx* erect. *Glands* between the shorter filaments. *Br.*—Name, this plant was formerly dedicated to *St. Barbara.*

Tetradynamia. Siliquosa.

1. B. *vulgaris*, Br. *Bitter Winter Cress, yellow Rocket.* Lower leaves lyrate, the terminal lobe rounded; the superior ones obovate, toothed; often pinnatifid at the base; pods linear, terete-4-angled, acuminate. *Br. in Hort. Kew. ed.* 2. *v.* iv. *p.* 109. *Br. Fl.* 1. *p.* 304. *E. Fl. v.* iii. *p.* 198.—*Erysimum Barbarea, Linn.*—*E. Bot. t.* 443.

Pastures, waste grounds, and hedge banks, frequent. Very common about Dublin. *Fl.* May—Aug. ♃.—One to two feet high, stout, furrowed and branched, glabrous. *Flowers* yellow.

2. B. *præcox*, Br. *Early Winter Cress.* Lower leaves lyrate, upper ones pinnatifid; segments linear-oblong, entire; pods linear, obtuse, compressed. *Br. in Hort. Kew. ed.* 2, *v.* iv. *p.* 109. *E. Fl. v.* iii. *p.* 199.—*Erysimum præcox, Sm.*—*E. Bot. t.* 1129.

In a lane near the North Circular-road, *F. Whitla, Esq. Fl.* April—Oct. ♂.—One to two feet high; more slender than the last in every part. *Flowers* smaller; *pods* long.

5. Arabis. *Linn.* Rock-cress.

Pod linear, crowned with the nearly sessile *stigma; valves* veiny or nerved. *Seeds* in one row. *Cotyledons* accumbent (O=). *Cal.* erect. *Br.*—So named, because originally an *Arabian* genus. *Tetradynamia. Siliquosa.*

1. A. *ciliata*, Br. *Fringed Rock-cress.* Leaves somewhat toothed, oval, glabrous, ciliated; radicle ones nearly sessile, obtuse; those of the stem semiamplexicaul; stem simple. *Br. in Hort. Kew. ed.* 2. *v.* iv. *p.* 107. *Br. Fl.* 1. *p.* 303. *Fl. v.* iii. *p.* 212.—*Turritis alpina, Linn.*—*E. Bot. t.* 1746.

Gravelly beach by the sea-shore at Rynville, Cunnamara, in Oct. 1805. On the western point of Bear Island, County of Kerry, and on the shore at Derrinane; *Mr. J. Drummond. Fl.* July, Aug. ♂.—Four to six inches high. *Root-leaves* several, oval, or obovato-oblong, obtuse, cauline ones small. *Pods* nearly erect.

2. A. *hirsuta*, Br. *Hairy Tower-mustard.* Leaves all hispid, dentate, cauline ones semiamplexicaul; pods straight. *Br. in Hort. Kew. ed.* 2. *v.* iv. *p.* 107. *Br. Fl.* 1. *p.* 303. *E. Fl. v.* iii. *p.* 213.—*Turritis hirsuta, Linn.*—*E. Bot. t.* 587.

Walls and calcareous rocks. On the stone roof of St. Doulagh's Church, and church-yard wall. Rocks at Feltrum; also on rocks near Corrofin, County of Clare, and other places. *Fl.* June. ♂.—One foot or more high, erect, stiff. *Stem* rough with spreading hairs, bearing many *leaves. Flowers* small, white. *Pods* numerous, erect. For *Arabis thaliana* see *Sisymbrium.*

6. CARDAMINE. *Linn.* Lady's-smock.

Pod linear, the valves flat, generally separating elastically, nerveless. *Seed stalks* slender. *Cotyledons* accumbent (O=). Name, Καρδια, the *heart*, and δαμαω, to *fortify*: from its supposed strengthening qualities.

Tetradynamia. Siliquosa.

1. C. *amara*, Linn. *Bitter Lady's-smock.* Leaves pinnated; radical leaves roundish; cauline ones dentato-angulate; style oblique; stigma rather acute; stem rooting at the base. *Br.*—*Br. Fl.* 1. *p.* 302. *E. Bot. t.* 1000. *E. Fl. v.* iii. *p.* 190.

Wet meadows near Toom Bridge, and by the side of the Mayola river, near Castle Dawson; *Mr. D. Moore. Fl.* April—June. ♃.—One foot high. Well distinguished from the following by the broad angulato-dentate *leaflets* of its upper *leaves*, and the large white *flowers*, and purple *anthers*.

2. C. *pratensis*, LINN. *Common Lady's-smock.* Leaves pinnate, radical leaflets roundish, dentate, cauline ones lanceolate, nearly entire; style straight; stigma capitate. *Br. Fl.* 1. *p.* 302. *E. Fl. v.* iii. *p.* 189. *E. Bot. t.* 776.

Wet meadows, abundant. *Fl.* May. ♃.—One to two feet high. *Flowers* large, blush coloured; sometimes found double, in which state the leaflets are known to produce new plants, when they come in contact with the ground, while still attached to the parent plant.

3. C. *hirsuta*, Linn. *Hairy Lady's-smock.* Leaves all pinnatifid, and without stipules; leaflets petiolate; radical ones roundish; stamens 4—6, equal in length to the petals; stigma nearly sessile. *Br.*—*Br. Fl.* 1. *p.* 302. *E. Fl. v.* iii. *p.* 188. *E. Bot. t.* 492. *Cardamine flexuosa, With.*

Moist shady places, abundant; very common near Dublin. *Fl.* March—June. ⊙.—Varying much in size and luxuriance, according to soil and situation. From four inches to one foot and more in height. *Leaflets* more or less angled, or toothed; upper ones ovate, or even linear, hairy or glabrous. *Flowers* small, white.

Tribe II. *Alyssineæ.* De Cand.

Silicula dehiscing longitudinally. Septum broad, oval, membranous; valves flat or concave. Seeds compressed, often bordered. Cotyledons flat, accumbent, parallel with the septum.

7. DRABA. *Linn.* Whitlow-grass.

Pouch entire, oval or oblong; *valves* plane or slightly convex, *cells* many-seeded. *Seeds* not margined. *Cotyledons* accumbent. (O=.) *Filaments* simple. *(Draba and Erophila, De Cand.)*—Named from δραβη, *acrid*, as are the leaves of many of this tribe. *Tetradynamia. Siliquosa.*

1. D. *verna*, Linn. *Common Whitlow-grass.* Scapes naked; petals deeply cloven; leaves lanceolate, somewhat toothed, hairy. *Br. Fl.* 1. *p.* 299. *E. Fl. v.* iii. *p.* 158.—*Erophila vulgaris, De Cand.*—*E. Bot. t.* 586.

Frequent on walls, rocks, and dry banks, sand and gravel-pits, about Sandymount and Ball's Bridge, and walls near Stillorgan; also on Feltrum hill. *Fl.* March—May. ⊙.

2. D. *incana*, Linn. *Twisted-podded Whitlow-grass.* Cauline-leaves several, lanceolate, toothed, hoary with starry pubescence; pouch oblong, somewhat twisted. *Br. Fl.* 1. *p.* 300. *E. Fl. v.* iii. *p.* 160. *E. Bot. t.* 308.

Mountain rocks. Cliffs on Magillicuddy's Reeks, County of Kerry. Ben Bulben and other mountains in the County of Sligo. Mr. Moore finds it on the sandy flat of Magilligan, as well as on the adjoining mountain of Benyevena. *Fl.* June, July. ♂.—From 4—6 inches to a foot and more high, sometimes throwing out lateral branches. Lower *leaves* frequently entire, upper ones deeply toothed, almost cut, acute. *Pouch* erect, glabrous.

i. ware. v. II. 257.

8. Cochlearia. *Linn.* Scurvy-grass.

Pouch oval or globose, many-seeded, the *valves* turgid. *Filaments* simple. *Seeds* not margined. *Calyx* patent. *Cotyledons* accumbent (O=). *Br.*—Name, *Cochlear*, a *spoon*, from the shape of the leaves. *Tetradynamia. Siliculosa.*

1. C. *officinalis*, Linn. *Common Scurvy-grass.* Pouch globose; radical leaves petiolate, cordato-reniform entire or sinuated; cauline ones sessile, oblong, sinuated. *Br. Fl.* 1. *p.* 298. *E. Fl. v.* iii. *p.* 174. *E. Bot. t.* 351.

Rocks and muddy places by the sea coast, as well as upon the elevated mountains. *Fl.* May, June. ⊙.—*Leaves* succulent, more or less entire; those of the stem semiamplexicaul by their generally toothed bases.

2. C. *anglica*, Linn. *English Scurvy-grass.* Pouch elliptical, veiny; radical leaves petiolate, cordate, entire; cauline ones mostly sessile, oblong, more or less toothed near the base. *Br. Fl.* 1. *p.* 298. *E. Fl. v.* iii. *p.* 176. *E. Bot. t.* 552.

Muddy and rocky sea-shores, and margins of salt-water rivers, frequent. Banks of the Dodder, near Haig's distillery. River side below Cork, and shore near Bantry; *Mr. J. Drummond. Fl.* May, June. ⊙. Generally smaller than *C. officinalis*, with more entire *leaves* and elliptical *pouches*.

3. C. *dancia*, Linn. *Danish Scurvy-grass.* Pouch ovato-elliptical, veiny; leaves all petiolate, nearly deltoid. *Br. Fl.* 1. *p.* 298. *E. Fl. v.* iii. *p.* 177. *E. Bot. t.* 697.

Sea coast, in a stony and muddy soil, frequent. Salt marshes below the Dublin Custom House; on the old thatched roofs of houses in Kinsale, and on Cork-beg, near Cove. Shore of Belfast Lough; *Mr.*

Templeton. *Fl.* May. ⊙.—The smallest of the species, with very angular and stalked *leaves.*

4. C. *Armoracia,* Linn. *Horse radish.* Pouch oblong; stigma dilated, nearly sessile; radical leaves oblong on long footstalks, crenate; cauline ones lanceolate, serrate, or entire. *Br. Fl.* 1. *p.* 298. *E. Fl. v.* iii. *p.* 176. *E. Bot. t.* 2323.

Apparently wild in various places near Dublin, but probably only the outcast of gardens. Meadows near Mallow; *Mr. J. Drummond. Fl.* May. ♃.

Tribe III. *Thlaspideæ.* De Cand.

Silicula dehiscing; septum very narrow; valves keeled, navicular. Seeds oval, sometimes bordered. Cotyledons flat, accumbent, at right angles with the septum.

9. THLASPI. *Linn.* Penny-cress.

Pouch laterally compressed, emarginate. *Valves* winged at the back, many-seeded. *Cotyledons* accumbent (O=).—Name from θλαω, to *flatten,* on account probably of its compressed *seeds* or *seed-vessels.* *Tetradynamia. Siliculosa.*

1. T. *arvense,* Linn. *Penny-cress or Mithridate Mustard.* Pouch orbicular with a broad longitudinal wing; seeds concentrically striated; leaves oblong, arrow-shaped, toothed, glabrous. *Br.*—*Br. Fl.* 1. *p.* 295. *E. Fl. v.* iii. *p.* 171. *E. Bot. t.* 1659.

Fields, and by road sides, but not common. Side of the road between Ballybracken and Kilkenny, and in a field between Mrs. Hannington's house and the shore, south side of the Hill of Howth, where it was first noticed by Major Percy Pratt. In corn fields near Dundrum, County of Down; *Mr. Templeton. Fl.* June, July. ⊙.—One foot high, branched above. *Flowers* extremely small, white. *Pouch* very large, with unusually broad wings.

Tribe IV. *Cakilineæ.* De Cand.

Siliqua or silicula separating transversely into joints, with one or two cells, and one or two seeds. Seeds not bordered. Cotyledons flat, accumbent, parallel with the septum, when there is one.

10. CAKILE. *Gærtn.* Sea Rocket.

Pouch angular, of two, 1-seeded, indehiscent joints, the upper joint deciduous, bearing an upright, sessile *seed,* the lower one (sometimes abortive) pendulous. *Cotyledons* accumbent (O=).—Name, an old Arabic word, applied probably to this, or some allied genus. *Tetradynamia. Siliculosa.*

1. C. *maritima,* Willd. *Purple Sea-Rocket.* Joints of the pouch two-edged, the upper one with two teeth at the base;

leaves fleshy, pinnatifid, somewhat toothed. *Br. Fl.* 1. *p* 293. *E. Fl. v.* iii. *p.* 183.—*Bunias Cakile, Linn.*—*E. Bot. t.* 231.

Sandy sea-shores, frequent. *Fl.* June, July. ⊙—Bushy. *Branches* crooked, and, as well as the whole plant, succulent. *Flowers* purplish. *Pouch* thick, fleshy, at length somewhat woody.

SUBORDER NOTORHIZEÆ. *De Cand.* O ||

Cotyledons flat, incumbent. Radicle lying upon the back of the cotyledons. Seeds ovate, not bordered.

Tribe V. *Sisymbrieæ.* De Cand.

Siliqua two-celled, dehiscing lengthwise. Valves concave or keeled. Seeds ovate or oblong, not bordered. Cotyledons flat, incumbent, at right angles with the septum.

11. HESPERIS. *Linn.* Dame's Violet.

Pod 4-sided or two-edged. *Stigma* nearly sessile, the lobes connivent. Cotyledons incumbent (O ||), plane. *Cal.* erect. *Br.*—Named from ἑσπερυς, the *evening;* at which time the flowers yield a powerful fragrance.

Tetradynamia. Siliquosa.

1. H. *matronalis*, Linn. *Common Dame's Violet.* Stem erect; leaves ovato-lanceolate, toothed; limb of the petals obovate; pods erect torulose their margins not thickened. *Br. Fl.* 1. *p.* 307. *E. Fl. v.* iii. *p.* 207.—*H. inodora, Linn.*—*E. Bot. t.* 731.

Hilly pastures, but often the outcast of gardens. *Fl.* May, June. ♃.—In a meadow close to Knocknahatna, near Oldcastle, County of Cavan; *Rev. N. J. Halpin;* who says, "I have observed this plant growing for ten years—at first I found it all through the field, but by constant mowing it is now confined to the ditch. There are no gardens near from which it could have escaped." The double purple rocket of the gardens is a variety of this. The double white rocket of the gardens appears to belong to another variety, common in gardens, with larger and lighter coloured *flowers.*

12. SISYMBRIUM. *Linn.* Hedge Mustard.

Pod rounded or angular. *Cotyledons* incumbent (O ||) (sometimes oblique), plane. *Calyx* patent, sometimes erect. *Br.*—Name σισυμβριὸν; given by the ancients to some plant, perhaps allied to this. *Tetradynamia. Siliquosa.*

1. S. *officinale,* Linn. *Common Hedge Mustard.* Pods subulate, pubescent, close pressed to the main-stalk; leaves muricate, hairy; stem hispid. *Br. Fl.* 1. *p.* 305. *E. Fl. v.* iii. *p.* 196.—*Erysimum officinale, Linn.*—*E. Bot. t.* 735.

Waste places, and by way-sides, plentiful. *Fl.* June, July. ⊙.—One or two feet high, branched. The deep and cut serrated lobes are not always sufficiently decurved to constitute a *runcinate* leaf; the terminal lobe is very large, roundish in the lower *leaves*, and oblong in the upper ones. *Flowers* very small, pale yellow.

2. S. *irio*, Linn. *Broad Hedge-Mustard, London Rocket.* Leaves runcinate toothed, and as well as the stem glabrous; pods nearly erect. *Br. Fl.* 1. *p.* 305. *E. Fl. v.* iii. *p.* 197. *E. Bot. t.* 1631.

Waste grounds, rubbish, and way-sides, common, especially near large towns; very common about Dublin. It covered the ground in the spring after the great fire in London. Haller records the same tendency in the preceding species, *Smith. Fl.* July, Aug. ⊙.—*Flowers* yellow. *Pods* two inches long, erect.

3. S. *Sophia*, Linn. *Fine-leaved Hedge-Mustard, or Flixweed.* Leaves doubly pinnatifid, slightly hairy; lobes linear or oval; petals shorter than the calyx. *Br. Fl.* 1. *p.* 306. *E. Fl. v.* iii. *p.* 197. *E. Bot. t.* 963.

Waste places, among rubbish and sandy grounds, frequent. Very common near Dublin. *Fl.* Aug. ⊙.—Two feet high, branched. *Flowers* small, yellow. *Pods* linear, slender, erect, but not appressed, the footstalk being a little patent.

4. S. *thalianum*. *Common Thale-cress.* Leaves somewhat toothed, hairy; radical ones oblong subpetiolate; stem branched; pods ascending. *Br. Fl.* 1. *p.* 306. *E. Fl. v.* iii. *p.* 209.—*Arabis thaliana, Linn.*—*E. Bot. t.* 901.

Walls, dry banks, and gravelly soils; not very common about Dublin. On walks between Step-aside and the Scalp. Old walls, Friar's Walk, Cork; *Mr. J. Drummond. Fl.* April, May. ⊙.—Six to ten inches high, slender, with few *leaves*, and those mostly radical. *Flowers* small, white. The *colytedons* are incumbent here, not accumbent as in the true *Arabis. Hook.*

13. ERYSIMUM. *Linn.* Treacle-mustard.

Pod 4-sided. *Seeds* not margined. *Cotyledons* incumbent (O||). *Stigma* capitate, sometimes emarginate, with the lobes patent. *Cal.* erect. *Br.*—Name from ερυω, to cure, on account of the supposed virtues of the plant.

Tetradynamia. Siliquosa.

1. E. *cheiranthoides*, Linn. *Worm-seed, Treacle-mustard.* Leaves lanceolate, entire, or slightly toothed, with stellate-tripartite hairs; pods nearly erect, their pedicels spreading; stigma undivided, nearly sessile. *Br.*—*Br. Fl.* 1. *p.* 306. *E. Fl. v.* iii. *p.* 200. *E. Bot. t.* 942.

Fields, gardens, and waste places. Sunday's Well, near Cork; *Mr. J. Drummond. Fl.* July, Aug. ⊙.—One or two feet high, branched. *Flowers* small, yellow.

2. E. *Alliaria*, Linn. *Jack by the Hedge, or Sauce alone.*

Leaves heart-shaped, stalked sinuato-dentate. *Br. Fl.* 1. *p.* 306. *E. Fl. v.* iii. *p.* 201. *E. Bot. t.* 796.—*Alliaria officinalis, De Cand.*

Hedge banks and waste places. *Fl.* May, June. ♂.—Two to three feet high, branched. *Leaves* large, veined, well known from their garlic-like smell. *Flowers* white. *Pods* erect, on horizontal *stalks*.

Tribe VI. *Camèlineæ.* De Cand.

Silicula with concave vavles. Septum elliptical in its chief diameter. Seeds ovate. Cotyledons flat, incumbent, at right angles with the septum.

14. CAMELINA. *Crantz.* Gold of Pleasure.

Pouch subovate, many-seeded. *Valves* inflated. *Cotyledons* incumbent (O ‖). *Filaments* simple. *Br.*—Name, χαμαι, *dwarf* or *humble*, and *Linum*, *flax*.
Tetradynamia. Siliculosa.

1. C. *Sativa*, Crantz. *Common Gold of Pleasure.* Pouch obovate, margined; stigma simple; leaves lanceolate-sagittate. *Br.*—*Br. Fl.* 1. *p.* 300. *E. Fl. v.* iii. *p.* 164. *E. Bot. t.* 1254. —*Myagrum sativium, Linn.*

Fields, occasionally among flax, with which it has been imported. *Fl.* June, July. ⊙.—Two to three feet high, panicled above. *Flowers* small, yellow. *Pouches* very large, on long stalks.

Tribe VII. *Lepidineæ.* De Cand.

Silicula with a very narrow septum. Valves keeled, or very concave. Seeds solitary or very few, ovate, not bordered. Cotyledons flat, incumbent, parallel with the septum.

15. CORONOPUS. *Gærtn.* Wart-cress.

Pouch two-lobed, without *valves* or wings. *Seeds* solitary in each cell. *Cotyledons* linear, incumbent (O ‖).—Name, Κορωνη, a *Crow*, and πους, a *foot;* the cut leaves somewhat resembling a bird's foot. *Tetradynamia. Siliculosa.*

1. C. *Ruellii*, Sm. *Common Wart-cress, Swine's-cress.* Pouch undivided, crested with little sharp points; style prominent. *Br. Fl* 1. *p.* 294. *E. Bot. t.* 1660.—*Senebiera Coronpus, De Cand. E. Fl. v.* iii. *p.* 179.—*Cochlearia Coronopus, Linn.*

Waste grounds and road-sides; very common about Dublin, Cork, and other places. *Fl.* June—Sept. ⊙.—A much branched spreading weed. *Leaves* bipinnate, their segments linear. *Flowers* very small, white, in lateral axillary *corymbs*. *Pouch* large in proportion to the flower, curiously crested.

2. C. *didyma*, Sm. *Lesser Wart-cress.* Pouch emarginate, of two wrinkled lobes; style very short. *Br. Fl.* 1. *p.* 294.—

Senebiera didyma, E. Fl. v. iii. *p.* 180.—*S. pinnatifida, De Cand.*—*Lepidium didymum, Linn.*—*E. Bot. t.* 248.

Waste ground near the sea. Plentiful on sandy grounds near the harbour at Youghal, and on dry banks near Ross. Road-side near Clerk's Bridge, Cork; *Rev. William Hincks, F.L.S.* Plentiful about the Lough at Cork; *Charles Halpin, Esq. Fl.* July. ⊙.

16. Capsella. *De Cand.* Shepherd's Purse.

Pouch laterally compressed, obcordate-cuneate; the *valves* sharply keeled, without wings, many-seeded. *Cotyledons* incumbent, (O ||).—Name, the diminutive of *Capsula; a little capsule* or *box.* *Tetradynamia. Siliculosa.*

1. C. *Bursa-Pastoris,* De Cand. *Common Shepherd's Purse. Br. Fl.* 1. *p.* 295.—*Thlaspi Bursa-Pastoris, Linn. E. Fl. v.* iii. *p.* 173. *E. Bot. t.* 1435.

Corn fields and waste places, everywhere, most abundant. *Fl.* the whole summer. ⊙.—Very variable, from three inches to 1—2 feet high. Radical *leaves* more or less pinnatifid, cauline ones lanceolato-sagittate, all generally toothed, and rough with hairs. *Flowers* small. It differs in the embryo as well as in the pouch from *Thlaspi.* This, however, according to Sir J. E. Smith, is the true *Thlaspi* of Dioscorides.

17. Lepidium. *Linn.* Pepper-wort.

Pouch with the *cells* one-seeded, the *valves* keeled. *Petals* equal. *Cotyledons* incumbent (O ||); rarely accumbent (O =). *Br.*—Name; λεπις, a *scale,* from the form of the little pouches. *Tetradynamia. Siliculosa.*

1. L. *latifolium,* Linn. *Broad-leaved Pepper-wort.* Leaves ovate-lanceolate, undivided, serrated, or entire; pouch oval, entire. *Br.*—*Br. Fl.* 1. *p.* 296. *E. Fl. v.* iii. *p.* 165. *E. Bot. t.* 182.

Wet shady places near the sea, and salt marshes. Cork-beg, near Cove, 1804, where it had been previously noticed by Smith. *Fl.* July. ♃.—Two or three feet high, branched, erect, with large *leaves. Flowers* numerous, small, in many terminal and axillary clustered *racemes.*

2. L. *ruderale,* Linn. *Narrow-leaved Pepper-wort.* Flowers diandrous, without petals; radical leaves pinnatifid; those of the branches linear, entire; pouch emarginate, patent. *Br. Fl* 1. *p.* 297. *E. Fl. v.* iii. *p.* 165. *E. Bot. t.* 1595.

Waste places near the sea, and among rubbish. Sea-shore opposite Kilbarrick Church; *Dr. Osborne. Fl.* June. ⊙.—*Stems* sometimes a foot high, much branched. *Seed-vessels* numerous. *Cotyledons* incumbent, as in most of the genus.

3. L. *campestre,* Br. *Common Mithridate Pepper-wort.* Pouch ovate emarginate, winged, rough with minute scales; style scarcely longer than the notch; cauline leaves sagittate, toothed.

Br. Fl. 1. *p.* 292. *E. Fl. v.* iii. *p.* 166.—*Thlaspi campestre, Linn.* —*E. Bot. t.* 1385.

This species, though common in England and Scotland, is rare in Ireland. It has been observed by Mr. J. Drummond in the County of Cork. *Fl.* July. ⊙.—Ten or twelve inches high. *Stems* solitary, branched above. Lower *leaves* almost spathulate, all slighty pubescent, as well as the *racemes* and *pedicels*. *Pouch* curiously scaly.

4. L. *Smithii*, Hook. *Smooth Field Pepper-wort.* Pouch ovate, emarginate, winged, glabrous, quite smooth, or occasionally very minutely scaly on the back; style much exserted beyond the notch; cauline leaves sagittate, toothed. *Br. Fl.* 1. *p.* 297. *E. Fl. v.* iii. *p.* 167.—*Thlaspi hirtum*, *Fl. Br. p.* 684. (not of Linn.) *E. Bot. t.* 1803.

Borders of fields and hedges. Plentiful on the Hill of Howth, ditch banks above Dundrum, and many other places near Dublin. Near Warrenpoint; *Mr. Templeton. Fl.* June, July. ♂.—Six to eight inches high. *Stems* many, from the same perennial, or, perhaps, biennial, root. Much resembling the last, but truly distinct from it, with a whiter and more abundant pubescence. *Stems* and *racemes* hairy. *Pod* with a much larger style, quite glabrous, and smooth or even; except that rarely, in the middle of the back, there are a few very minute scales.

Tribe VIII. *Isatideæ.* De Cand.

Silicula with indistinct or indehiscent keeled valves, one-celled, one-seeded, with an imperfect septum. Seed ovate, oblong. Cotyledons flat, incumbent, parallel with what should be the septum,

18. ISATIS. *Linn.* Woad.

Pouch 1-celled, 1-seeded, laterally compressed. *Valves* keeled eventually separating. *Cotyledons* incumbent (○ ‖).—Named from *ισαζω*, to *make even*, because it was supposed to have the property of reducing the inequalities of the skin.

Tetradynamia. Siliculosa.

1. I. *tinctoria*, Linn. *Dyer's Woad.* Pouch obovato-oblong, glabrous; radical leaves oblong, crenate; those of the stem sagittate. *Br. Fl.* 1. *p.* 294. *E. Fl. v.* iii. *p.* 182. *E. Bot. t.* 97.

Cultivated fields, scarcely indigenous. Fields near Woodlands, County of Dublin. *Fl.* July. ♂.—Cultivated for the sake of the blue dye which it yields, and used by the ancient Britons to paint their bodies.

SUBORDER ORTHOPLOCEÆ. *De Cand.* ○ > >

Cotyledons incumbent, folded lengthwise, so as to receive the radicle in the folds. Seeds generally round, never bordered.

Tribe IX. *Brassiceæ.* De Cand.

Siliqua dehiscing lengthwise. Septum linear. Seeds globose. Cotyledons folded together.

19. Brassica. *Linn.* Cabbage, Turnep.

Pod 2-valved (with a sterile, one, or many-seeded beak). *Cotyledons* conduplicate (O > >). *Calyx* erect. *Br.*—Name derived from the Celtic *Bressic*, a *Cabbage*, according to Theis.
Tetradynamia. Siliquosa.

1. B. *Napus*, Linn. *Wild Navew, Rape or Cole-seed.* Root spindle-shaped; leaves smooth; upper ones cordato-lanceolate, heart shaped at their base, clasping the stem; lower ones lyrate, toothed. *Br. Fl.* 1. *p.* 308. *E. Fl. v.* iii. *p.* 217. *E. Bot. t.* 2146.

Corn fields and waste grounds, frequent. *Fl.* May, June. ♂.—One to two feet high. *Lobes* of the lower *leaves* crenate; upper *leaves* entire, somewhat glaucous. *Petals* yellow, rather small. *Pods* torulose. Cultivated for the oil produced by its seeds, which, after pressure, are formed into cakes, and found useful for manure and feeding of cattle.

2. B. *Rapa*, Linn. *Common Turnep.* Root fleshy, orbicular, depressed; radicle leaves lyrate, rough, those of the stem nearly entire. *Br. Fl.* 1. *p.* 308. *E. Fl. v.* iii. *p.* 217. *E. Bot. t.* 2176.

Borders of fields and waste places. Very common about Dublin, often mistaken for the last, but may be readily distinguished by its larger flowers, which are of a much brighter yellow, and more orbicular roots. *Fl.* April, May. ♂.—Varying exceedingly in height according to soil. Upper *leaves* amplexicaul, ovate-acuminate, somewhat glaucous; all more or less toothed. *Flowers* yellow, rather large.

3. B. *campestris*, Linn. *Common Wild Navew.* Root tapering; radicle leaves lyrate, rough; stem leaves smooth, clasping, oblong, partly pinnatifid; all somewhat glaucous. Smith.—*Br. Fl.* 1. *p.* 308. *E. Fl. v.* iii. *p.* 218. *E. Bot. t.* 2234.

Corn fields near Dundrum, 1805, and near the village of Faughan, County of Donegal; *Mr. Templeton.* *Fl.* June, July. ⊙.—*Root* fusiform, but slender. *Stem* hispid below. *Flowers* yellow. *Pods* upright, cylindrical, or obscurely four-angular, veiny; the *seeds* forming slight prominences; the *beak* awl-shaped, striated, square at its base.

4. B. *oleracea*, Linn. *Sea Cabbage.* Root cylindrical, fleshy; leaves glaucous, waved, lobed, partly lyrate, all perfectly smooth; pod without a beak. *Br. Fl.* 1. *p.* 308. *E. Fl. v.* iii. *p.* 219. *E. Bot. t.* 637.

Cliffs by the sea. On the cliffs near Youghal, sparingly; *Mr. J. Drummond.* *Fl.* May, June. ♂. Varying in height, 1—2 feet.

Leaves thick, somewhat fleshy, the uppermost undivided, but toothed. *Flowers* large, yellow. The origin of our garden cabbage.

20. Sinapis. *Linn.* Mustard.

Pod 2-valved, sometimes of two joints, (of which the upper one is without valves.) *Cotyledons* conduplicate (O > >). *Cal.* patent. *Br.* (*Sinapis* and *Diplotaxis*, *De Cand.*)—Name from the Greeek σιναπι, which again *Theis* derives from Celtic *Nap*, a *turnep* or *cabbage*. *Tetradynamia. Siliquosa.*

1. S. *arvensis*, Linn. *Wild-Mustard, Charlock.* Pods with many angles, turgid and knotty, longer than the two-edged beak. *Br. Fl.* 1. *p.* 309. *E. Fl. v.* iii. *p.* 221. *E. Bot. t.* 1748.

Corn fields, too frequent. *Fl.* May, June. ⊙.—One to six feet high, rough. *Flowers* rather large, yellow.

2. S. *alba*, Linn. *White Mustard.* Pods hispid, turgid, shorter than the ensiform beak; leaves pinnatifid. *Br. Fl.* 1. *p.* 309. *E. Fl. v.* iii. *p.* 222. *E. Bot. t.* 1677.

Waste places, frequent. Plentiful at Portmarnock and many other places about Dublin. *Fl.* July. ⊙.—*Stem* one foot to one and a half foot high, hairy. Lobes of the *leaves* variously cut and toothed, or erose. *Flowers* large, yellow. Well distinguished by its long *beak*. This plant, while in a young state, is eaten under the name of *mustard* as an ingredient in salads.

3. S. *nigra*, Linn: *Common Mustard.* Pods appressed, glabrous, tetragonous; style short, subulate; upper leaves linear-lanceolate, entire, glabrous. *Br. Fl.* 1. *p.* 309. *E. Fl. v.* iii. 222. *E. Bot. t.* 969.

Under hedges and in waste places, equally common as the last. *Fl.* June. ⊙.—Three to four feet high. Lower *leaves* large, lyrate, rough. *Flowers* yellow. *Pod* with a very short *beak*, or rather only the persistent *style* and *stigma* at its summit, quadrangular, its surface scarcely rugged. The seeds yield the mustard of our tables.

Tribe X. *Raphaneæ.* De Cand.

Silicula or siliqua separating transversely into one or few seeded points or cells. Seeds globose. Cotyledons folded together.

21. Crambe. *Linn.* Kale.

Pouch with the upper joint globose, indehiscent, deciduous, bearing one *seed*, inverted, upon a stalk arising from the bottom of the cell; lower joint abortive, resembling a pedicel. *Cotyledons* conduplicate (O > >) *Wilson.*—Name, Κραμβος, of the Greeks. *Tetradynamia. Siliculosa.*

1. C. *maritima*, Linn. *Sea-Kale.* Longer filaments forked; pouch pointless; leaves roundish, sinuated, waved, toothed,

glaucous, and as well as the stem, glabrous. *Br. Fl.* 1. *p.* 294. *E. Fl. v.* iii. *p.* 184. *E. Bot t.* 1660.

Sea-coast, in sandy or stony soils, but not very general. Sandy coast between Portmarnock and Malahide. Strand near Bantry; *Mr. J. Drummond. Fl.* June. ♃.

22. Raphanus. *Linn.* Radish.

Pod without valves. *Cotyledons* conduplicate. (O > >). *Calyx* erect. *Br.*—Name, *ρα*, *quickly*, and *φαινομαι*, to *appear*; from its rapid vegetation. *Tetradynamia Siliquosa.*

1. R. *Raphanistrum*, Linn. *Wild Radish or jointed Charlock.* Leaves simply lyrate; pods of one cell, jointed, striated. *Br. Fl.* 1. *p.* 310. *E. Fl. v.* iii. *p.* 226. *E. Bot. t.* 856.

Corn fields, frequent. *Fl.* June, July. ⊙.—One foot to one foot and a half high. *Leaves* stalked, rough. *Flowers* yellow, veined.

2. R. *maritimus*, Sm. *Sea Radish.* Leaves interruptedly lyrate; pods of one cell, jointed, striated. *Br.*—*Br. Fl.* 1. *p.* 310. *E. Fl. v.* iii. *p.* 226. *E. Bot. t.* 1643.

Sea coast, near the salt works, at the Curren of Larne; *Mr. Templeton.* On the shore, south side of the Hill of Howth, where it was first observed by the late Mr. Underwood. *Fl.* June. ♂.—Three to four feet high. All the *leaves* rough, and the lobes toothed. *Flowers* rather large, yellow.

Suborder Diplecolobeæ. *De Cand.* O || || ||

Cotyledons incumbent, linear, folded twice in a transverse direction (*bicrures*). Seeds depressed.

Tribe XI. *Subularieæ.* De Cand.

Silicula oval; septum elliptical; valves convex; cells many-seeded; stigma sessile; cotyledons twice folded.

23. Subularia. *Linn.* *Awl-wort.*

Pouch oval, pointless, many-seeded. *Valves* turgid. *Cotyledons* incumbent (O ||), linear, curved. *Hook.*—Name, *subula*, an *awl*, the leaves being subulate or awl-shaped. *Tetradynamia. Siliculosa.*

1. S. *aquatica*, *Linn.* *Awl-wort.* *Br. Fl.* 1. *p.* 299. *E. Fl. v.* iii. *p.* 157. *E. Bot. t.* 732.

Shallow margins of alpine lakes, rare in Ireland. In a lake on Milrea mountain, County of Mayo, fifteen hundred feet above the level of the sea. Lough Carlan, a little north-west of the Gap of Barnesmore, Donegal; *Mr. E. Murphy.* Said to have been found in Lough Neagh, by Sherrard. *Fl.* July. ⊙.—*Roots* of numerous, long, white fibres. *Leaves* few, radical, awl-shaped, one to three inches long. Scape two to four inches high. *Flowers* small, which have been seen in perfection when entirely submerged. *Pouch* nearly approaching that of *Draba*, but with more turgid or convex *valves*. *Embryo* with *cotyledons* linear, long, and the curvature takes place above the base of the cotyledons, not at the very base, as in most of the Cruciferæ. *Hook.*

ORD. 7. VIOLACEÆ. *Juss.* Violet Family.

Sepals 5, persistent, with an imbricated æstivation, often produced at the base. Petals 5, generally unequal, with an oblique convolute æstivation. Stamens 5, on an hypogynous disk, often unequal: filaments dilated beyond the anthers, two often with an appendage: anthers opening inwards, 2-celled. Ovary 1-celled, mostly with many ovules: placentæ 3, parietal: style 1, persistent, often curved, with an oblique and frequently perforated stigma. Capsule of 3-valves which bear the placentæ. Seeds often carunculated at the base. Embryo straight, in the axis of a fleshy albumen.—*Herbs or small shrubs. Leaves simple, stipuled.*

VIOLA. *Linn.* Violet.

Calyx of 5 sepals extended at the base. *Petals* 5, unequal, the under one spurred at the base. *Anthers* connate, two of them spurred behind. *Capsule* of one cell, and three valves.—Name according to some from "*A vi olendi*" *from the power of its scent.* *Pentandria. Monogynia.*

* *Stemless, or nearly so.*

1. V. *hirta*, Linn. *Hairy Violet.* Leaves cordate, rough, as well as the petioles and capsules with hairs; calyx-leaves obtuse, lateral; petals with a hairy central line; creeping scions none. *Br. Fl.* 1. *p.* 105. *E. Fl. v.* i. *p.* 301. *E. Bot. t.* 894.

Sandy fields, banks and woods. Plentiful on banks by the sea between Clontarf and Kilbarrick Church. On the sand hills and on ditch banks at Portmarnock, and elsewhere about Dublin. Wood at Blarney, near Cork; *Rev. Dr. Hincks. Fl.* April, May. ♃.—*Stigma* an oblique point in this and the four following species. *Flowers* pale, rather dingy blue, scentless, nearly allied to *V. odorata;* distinguished, as Mr. Curtis well observes, by the short and creeping *scions*, by the greater hairiness of the plant, and the situation of the little bracteæ of the scape; here below, in *V. odorata* above the middle. I have frequently observed, at Portmarnock, this species, immediately after flowering, elongate its flower-stalks, in a downward direction, to a very considerable length, and bury the ripening capsule two or three inches under the sand in the dry banks where it grows. Dr. Hooker remarks that this and the following species are often destitute of petals and yet bear fruit.

2. V. *odorata*, Linn. *Sweet Violet.* Leaves cordate, and as well as the petioles nearly glabrous; calyx-sepals obtuse; lateral

petals with a hairy line; scions creeping. *Br. Fl.* 1. *p.* 105. *E. Fl. v.* i. *p.* 301. *E. Bot. t.* 619.

Woods, banks, and hedges. Hedge banks between Killiney Hill and Bray; also near Finglass. Farnham woods, Millbrook, and Oldcastle, County of Cavan; *Rev. N. J. Halpin. Fl.* March, April. ♃.—*Flowers* deep purple, fragrant, often white; which last colour is the prevailing one in the plants I have seen near Dublin. A third variety has the flowers of a lilac colour. All the varieties are much cultivated in gardens, both in the single and double state, and are much esteemed in spring for their fragrant flowers.

3. V. *palustris*, Linn. *Marsh Violet.* Leaves cordate or kidney-shaped, quite glabrous, veiny beneath; spur very short; lateral petals scarcely hairy; scions none. *Br. Fl.* 1. *p.* 106. *E. Fl. v.* 1. *p.* 303. *E. Bot. t.* 444.

Mossy bogs and marshy grounds. In Glencree, and near Powerscourt Waterfall, and other places in the counties of Dublin and Wicklow. It is also very common in rather elevated marshes in the south of Ireland, as stated by Mr. J. Drummond. *Fl.* June, and even in July, in the colder regions ♃.—*Flowers* very pale blue, with purple sheaths. "The *petals* are slightly hairy on one side at the base, as Mr. Wm. Wilson well observes; the lateral ones not having a distinct line of hairs." *Hooker.*

* * *Furnished with an evident Stem.*

4. V. *canina*, Linn. *Dog's Violet.* Stem at length ascending, channelled; leaves cordate, acute; leaflets of the calyx acuminate; stipules long, fringed; bracteas subulate, entire. *Br. Fl. p.* 106. *E. Fl. v.* 1. *p.* 303. *E. Bot. t.* 620.

β. minor. V. flavicornis, Sm. E. Fl. v. 1. *p.* 304. *Forst. in E. Bot. Suppl. t.* 2736.

Woods, banks, and dry pastures, frequent, and in clefts of rocks at a considerable elevation. *Fl.* April—Aug. ♃.—Variable in regard to size. In mountainous situations the blossoms are often numerous, and large in proportion to the size of the plant. *Flowers* scentless, blue, purple, or sometimes almost white. β. smaller in all its parts, having a short, blunt, yellowish spur, and short, firm, rigid, very even heart-shaped leaves, and by the deeper colour of the corolla. I, however, perfectly agree with Dr. Hooker in considering it only a variety of *V. canina.*

5. V. *lactea*, Sm. *Cream-coloured Violet.* Stem ascending; leaves ovato-lanceolate, glabrous; stipules dentate; calyx-leaflets acuminate. *Br. Fl.* 1. *p.* 106. *E. Fl. v.* 1. *p.* 303. *E. Bot. t.* 445.

On mountains and boggy heaths. Mountains near Castletown; *Mr. J. Drummond. Fl.* May. ♃.—A small plant with narrower *leaves* than the last, almost lanceolate, and pale blue or almost white *flowers.* An intermediate plant between this species and *V. canina*, with light coloured flowers, was found by Doctor Taylor on Brandon mountain.

6. V. *tricolor*, Linn. *Pansy Violet or Heart's Ease.* Mostly

annual; stem angled, branched; leaves oblong, deeply crenate; stipules lyrate, pinnatifid. *Br. Fl.* 1. *p.* 107. *E. Fl. v.* 1. *p.* 305. *E. Bot. t.* 1287.

β. petals shorter than the calyx. *V. arvensis, Murr.—Forst. in E. Bot. Suppl. t.* 2712.

Banks and cultivated fields, frequent. *Fl.* the whole summer. ⊙. ♃. or ♂.—Extremely variable, especially in the size and colour of its *flowers*. *Stigma* capitate, obliquely perforated.

7. V. *lutea*, Huds. *Yellow Mountain Violet or yellow Pansy.* Perennial; stem much branched at the base; leaves ovato-oblong, crenate; stipules lyrate, subpalmato-pinnatifid. *Br. Fl.* 1. *p.* 107. *E. Fl. v.* 1. *p.* 306. *E. Bot. t.* 721.

Mountains near Castletown, County of Cork; *Mr. J. Drummond. Fl.* May—Sept. ♃.—*Flowers* generally of a pale yellow or sulphur colour, much larger than any of the wild varieties of *V. tricolor.* Upper *petals* often purple.

8. V. *Curtisii*, Forst. *Yellow Sea Pansy.* Stem decumbent, angular, rough; leaves oblong, crenate, naked; leaf-stalks hairy; stipules palmate, lobes acuminated, ciliated; bracteas minute; spur the length of the calyx. *Forst. in E. Bot. Suppl. t.* 2963.

Abundant on the sand hills at Portmarnock, and other places on the coast, where it has frequently been mistaken for *V. lutea*, and is probably the plant alluded to by Doctor Hooker as a small var. of that species, found by Mr. Tozer at the Land's-end, Cornwall. Although I have followed Mr. Forster in giving it the rank of a species, I think it is nothing more than a variety of *V. tricolor.* Lower *petals* pale yellow, upper ones deep yellow, sometimes purple; both streaked with purple at the base. *Fl.* May—Sept. ♃.

ORD. 8. CISTINEÆ. *Juss.* Cistus Family.

Sepals 5, generally unequal, the two outer smaller, the three inner with a twisted æstivation. Petals 5, caducous, equal, wrinkled in æstivation and twisted in a direction opposite to that of the sepals. Stamens indefinite, erect, distinct: anthers ovate, 2-celled, inserted by their base. Style 1, filiform. Stigma simple, capsule 3—5-rarely 10-valved, 1-celled, with the valves bearing a single longitudinal placentæ, or 3—5-celled, the dissepiments from the centre of the valves, extending to the axis, and bearing the numerous seeds. Albumen nearly including a spiral or curved Embryo. *Shrubs or herbs. Leaves simple, lower ones generally opposite, the rest alternate. Stipules* 2 *and foliaceous, or none. Flowers racemose, very fugacious, white, yellow, or purple.*

1. HELIANTHEMUM. *Tourn.* Rock-rose.

Calyx of three equal sepals, or five, of which the two outer ones are smaller. *Petals* 5. *Stigma* capitate. *Capsules* 3-valved.—Name from *ἥλιος*, *the sun*, and *ανθος*, *a flower*. The same as *Helianthus*. *Polyandria. Monogynia.*

1. H. *vulgare*, Gært. *Common Rock-rose.* Shrubby, procumbent, stipuled; leaves opposite, ovate, or oblong, nearly flat, green above; racemes terminal, bracteated; calyx of 5 sepals, the inner furrowed and scariose at the edge; style bent at the base, somewhat clavate at the apex; seeds black. *Benth.*—*Br. Fl.* 1. *p.* 258.—*Cistus Helianthemum*, *Linn.*—*E. Bot. t*, 1321. *E. Fl. v.* iii. *p.* 26.—*C. tomentosus*, *E. Bot.* 2208. *E. Fl. v.* iii. *p.* 27.

Limestone rocks, south isles of Arran. Cape Clear Island, southern coast; *Mr. J. Drummond. Fl.* July, Aug. ♄.

ORD. 9. DROSERACEÆ. *D C.* Sun-dew Family.

Sepals 5, persistent, equal, with an imbricated æstivation, Petals 5. Stamens distinct, marcescent, equal in number to the petals and alternate with them, or 2, 3, or 4 times that number. Anthers 2-celled, opening longitudinally. Ovary 1, sessile. Styles 3—5, more or less combined. Capsule 1—3-celled, 3—5-valved, bearing the seeds along the middle, or at the base of the valves. Seeds sometimes furnished with an arillus. Embryo straight, in the centre of a fleshy or cartilaginous albumen. Radicle directed to the hilum.—*Delicate herbaceous plants, frequently clothed with glandular hairs, and in the* Droseræ *the leaves and peduncles have a circinnate vernation.*

1. DROSERA. *Linn.* Sun-dew.

Calyx 5-cleft. *Petals* 5. *Capsules* 1-celled, 3-valved, many-seeded. *Herbaceous plants with leaves clothed with beautiful glandular hairs.*—Name derived from *δροσος*, *dew.* The glands exude a pellucid fluid, which makes this plant appear as if it were covered with dew. In Latin, *Ros-solis*, the same as the English *Sun-dew.* *Pentandria. Hexagynia.*

1. D. *rotundifolia*, Linn. *Round leaved Sun-dew.* Leaves radical, orbicular, spreading; petioles hairy; seeds chaffy. *Br. Fl.* 1. *p.* 148. *E. Fl. v.* ii. *p.* 122. *E. Bot. t.* 867.

Bogs and moist heathy grounds, frequent. Bog near the summit of Howth, at the base of the Dublin mountains, and many other places. *Fl.* July. ♃.—*Leaves* in all our species covered with red pedunculated viscid glands, which retain insects. *Scape* two to five inches high, glabrous. *Flowers* racemed, drooping, small. *Styles* variable in number.

2. D. *longifolia*, Linn. *Spathulate-leaved Sun-dew.* Leaves radical spathulate, very obtuse, erect, on long glabrous petioles;

seeds with a compact, rough coat, not chaffy. *Br. Fl.* 1. *p.* 148. *E. Fl. v.* ii. *p.* 123. *E. Bot. t.* 868.

Bogs and moist heathy grounds in many parts of Ireland, not uncommon; more frequent in the southern and western counties. All the three species are found in an elevated bog on a mountain near Florence court, County of Fermanagh. *Fl.* July. ♃.—Well distinguished from the following by its rough, and not loose, coat to the *seeds*. *Styles* often eight. *Stigmas* deeply cloven.

3. D. *anglica*, Huds. *Great Sun-dew*. **Leaves radical, linear-spathulate, erect, on very long, glabrous petioles; seeds with a loose chaffy coat.** *Hook. Br. Fl.* 1. *p.* 149. *E. Fl. v.* ii. *p.* 123. *E. Bot. t.* 369.

Bogs in the southern, western, and northern counties, frequent. *Fl.* July, Aug. ♃.—This has much larger and longer *leaves* than the last; and, as Dr. Hooker remarks, would better deserve the name of *longifolia*. It has been thought by some botanists to be only a variety of that species. " Now, however, that Mr. Wilson has observed the true nature of its seed, an important and invariable character is established. Here the seed, as in *Pyrola* and *Orchis*, and in *D. rotundifolia*, has a very loose, articulated, even coat. In *D. longifolia* the coat firmly adheres to the rest of the seed, and is rough or papillose." *Hooker*. " Embryo at the lower end of the seed, dicotyledonous." *Wilson*.

ORD. 10. POLYGALEÆ. *Juss.* Milk-wort Family.

Sepals 5, with an imbricated æstivation, 2 interior ones often petaliform, 3 exterior smaller, of which the two anterior are sometimes combined, and the third is posterior. Petals 3—4, more or less connected by means of the staminal tube. Filaments of the stamens combined with the petals, monadelphous, but divided into two equal portions: anthers 8, 1-celled, opening by a pore at the extremity: ovary 1, distinct, 2-rarely 1—3-celled; style 1, incurved: stigma funnel-shaped or two-lobed. Fruit capsular or drupaceous, 2-or 1-celled, the valves bearing the dissepiments. Seeds solitary in each cell, pendulous, often carunculated, sometimes hairy or comate. Embryo straight, in the axis of a fleshy albumen; the latter sometimes wanting.—*Herbs or shrubs. Leaves mostly alternate, entire. Flowers racemose.*

1. POLYGALA. *Linn.* Milk-wort.

Calyx of 5 sepals, two of them wing-shaped and coloured. *Petals* combined by their claws with the *filaments*, the lower one keeled. *Capsules* compressed. *Seeds* downy, crested at the hilum.—Name, πολυ, *much*, and γαλα, *milk*; from some fancied property in the plant. *Diadelphia. Octandria.*

1. P. *vulgaris*, Linn. *Common Milk-wort*. **Keel crested; flowers in a terminal raceme; bracteas three to each pedicel;**

wings of the calyx ovate, about as long as the corolla; stems simple, herbaceous, procumbent, leaves linear-lanceolate. *Br. Fl.* 1. *p.* 317. *E. Fl. v.* iii. *p.* 259. *E. Bot. t.* 76.

Dry hilly pastures, frequent. *Fl.* June, July. ♃.—*Stems* four to eight inches long. *Corolla* beautifully crested, blue, purple, pink or white. *Sepals* persistent, enclosing the fruit.

Ord. 11. MALVACEÆ. *Br.* Mallow Family.

Sepals 5, rarely 3 or 4, more or less combined at the base, with a valvate æstivation, often bearing bracteas forming an involucre and resembling an outer calyx. Petals 5, equal, alternate with the sepals, with a twisted æstivation, often adnate at their base with the base of the staminal tube. Stamens 5 or indefinite; filaments united into a tube, unequal; anthers 1-celled, reniform, opening transversely. Ovary composed of many carpels or combined, placed around a common axis, distinct: styles as many as there are carpels, distinct or united; stigmas equal in number with the carpels, distinct or united. Carpels distinct or united into a many-celled capsule, each 1—2-or many-seeded, opening opposite the dissepiments or between them. Seeds sometimes villous; embryo curved; cotyledons folded.—*Herbs, shrubs or trees, mostly inhabiting warm and hot regions. Leaves alternate, petiolate, toothed, or lobed, often clothed with a stellated pubescence. Stipules two to each leaf, often deciduous. Peduncles usually axillary.*

Our indigenous species afford abundance of mucilage, and are employed for fomentations and cataplasing.

1. Malva. *Linn.* Mallow.

Styles numerous. *Calyx* double; *ext. of* 3 *sepals. Capsules* numerous, circularly arranged, 1-seeded.—Name; altered from $\mu\alpha\lambda\alpha\chi\eta$, *soft*, in allusion to the emollient nature of the species. *Monadelphia. Polyandria.*

1. M. *sylvestris*, Linn. *Common Mallow.* Stem erect, herbaceous; leaves with 7 rather acute lobes; peduncles and petioles hairy. *Br. Fl.* 1. *p.* 314. *E. Fl. v.* iii. *p.* 244. *E. Bot. t.* 671.

Waste places and way-sides, frequent. *Fl.* June—Aug. ♃.—*Stem* two to three feet high, branched. *Flowers* large, three or four together, axillary. *Petals* large, obcordate, purplish rose-colour, with deeper veins (rarely white) combined by the base of their claws. Whole *plant*, especially the *fruit*, mucilaginous and emollient; and has hence a place in the Materia Medica.

2. M. *rotundifolia*, Linn. *Dwarf Mallow.* Stem prostrate; leaves roundish-cordate 5-lobed; fruitstalks bent down. *Br. Fl.* 1. *p.* 314. *E. Fl. v.* ii. *p.* 246. *E. Bot. t.* 1092.

Waste places and way-sides, frequent. Plentiful near Sandymount, and many other places about Dublin. *Fl.* June—Sept. ♃.—*Stems* from ten inches to one foot in length, branching only from the root. *Flowers* small, roundish.

3. M. *moschata*, Linn. *Musk Mallow*. Stem erect; radical leaves reniform, in 5, or 7, broad cut lobes; cauline ones in 5 deep pinnatifid, jagged segments; calyx hairy, leaflets of the exterior calyx linear-lanceolate. *Br. Fl.* 1. *p.* 314. *E. Fl. v.* iii. *p.* 247. *E. Bot. t.* 754.

Meadows, pastures, and road-sides, especially in a gravelly soil. Dry banks about Enniskerry, and road-sides, County of Kilkenny. Near Hollywood and other places near Belfast; *Mr. F. Whitla. Fl.* July, Aug. ♃.—*Flowers* large, beautiful, rose-coloured, (occasionally white,) one to two from the axils of the terminal leaves. The *leaves* yield a faint musky smell if drawn through the hand.

2. ALTHÆA. *Linn.* Marsh-mallow.

Styles numerous. *Calyx* double; *exterior* of 6—9 *leaves*. *Capsules* numerous, circularly arranged, 1-seeded.—Name, αλθω, to *cure;* from its healing properties.

Monadelphia. Polyandria.

1. A. *officinalis*. Linn: *Common Marsh-mallow*. Leaves soft and downy on both sides, cordate or ovate, toothed, entire or 3-lobed; peduncles axillary, many-flowered, much shorter than the leaves. *Br. Fl.* 1. *p.* 315. *E. Fl. v.* iii. *p.* 244. *E. Bot. t.* 147.

Marshes, but mostly near the sea. Marshy grounds north of the Shannon a little above Limerick. Cable Island, near Youghal, and Cape Clear Island; *Mr. J. Drummond.* Road-side between Lahinch and Miltown, County of Clare; *Mr. W. Andrews. Fl.* Aug., Sept. ♃.—Two to three feet high, remarkable for the dense, exquisitely soft and starry pubescence of the *leaves* and *stems*. *Flowers* three to four together, on axillary *stalks*, large, pale rose-colour.—Affords an abundant mucilage, and a decoction of it is of general use in England and Ireland. The common road-side *mallow (M. sylvestris)* is often sold as *Marsh mallow*, and has pretty much the same properties.

3. LAVATERA. *Linn.* Tree-mallow.

Styles numerous. *Calyx* double; *exterior* 3-lobed. *Capsules* numerous, circularly arranged, 1-seeded.—Named in honour of two *Lavaters*, friends of Tournefort.

Monadelphia. Polyandria.

1. L. *arborea*, Linn. *Sea Tree-mallow*. Stem arborescent; leaves with about seven angles, downy, plaited; peduncles axillary, clustered, single-flowered. *Br. Fl.* 1. *p.* 314. *E. Fl. v.* iii. *p.* 248. *E. Bot. t.* 1841.

Maritime rocks. On old walls near the harbour of Galway; on cliffs on the south isles of Arran; near Dingle, and on Ireland's Eye. Near Ballintoy; *Mr. Templeton. Fl.* July, Aug. ♃.

ORD. 12. HYPERICINEÆ. *Juss.* Tutsan Family.

Calyx 4—5 cleft, or of 4—5 sepals, persistent, often unequal, with an imbricated æstivation, and dotted or glandular. Petals 4—5, alternate with the divisions of the calyx, often with oblique veins, sometimes with black glands, the æstivation contorted. Stamens indefinite, usually polyadelphous at the base; filaments long; anthers small, versatile. Ovary 1. Styles several, often combined; stigmas simple or capitate. Fruit a many, or 1-celled capsule or berry. Placentæ entire, central, or several at the margins of the valves. Seeds numerous. Albumen none (*De Cand.*) Embryo straight. Radicle inferior.—*Herbaceous or shrubby plants, variously and copiously glandular, the leaves (which are entire and mostly opposite) often with pellucid dots. Flowers generally yellow.*

A small but very extensively distributed family, yielding a resinous and slightly purgative and febrifugal juice.

1. HYPERICUM. *Linn.* St. John's-wort.

Calyx inferior, in 5 deep divisions. *Petals* 5. *Filaments* united at the base into 3 or 5 sets. *Capsules* many-seeded.—Name, the ὑπερικον, of Dioscorides.

Polyadelphia. Polyandria.

* *Styles* 5.

1. H. *calycinum,* Linn. *Large-flowered St. John's-wort.* Styles 5; *flowers* solitary; segments of the calyx unequal, obovate, obtuse; leaves oblong; stem shrubby, branched, square. *Br. Fl.* 1. *p.* 335. *E. Fl. v.* iii. *p.* 323. *E. Bot. t.* 2017.

Woods at Mucruss, 1804; in Powerscourt woods, perfectly naturalized; it has also been observed, apparently wild, near Cork, by Mr. J. Drummond, but in each case it is probably only the outcast of gardens. Commonly cultivated in shrubberies on account of its beauty. *Fl.* July—Sept. ♄.—*Flowers* very large, yellow, as in all the genus. Sets of *stamens,* five.

* * *Styles* 3. *Calyx segments entire at the margins.*

2. H. *Androsæmum,* Linn. *Tutsan.* Styles 3; capsule pulpy; stem shrubby compressed; calyx-leaflets unequal; leaves ovate, sessile. *Br. Fl.* 1. *p.* 335. *E. Fl. v.* iii. *p.* 364. *E. Bot. t.* 1225.—*Androsæmum officinale, All.—Lindl.*

Hedges and shrubby places. Hedges and woods in the County of Dublin, County of Down, and various other parts of the country. *Fl.*

July. ♄.—Two feet high. *Leaves* large. *Cymes* of rather large *flowers*, terminal. *Berry* black.

3. H. *quadrangulum*, Linn. *Square-stalked St. John's-wort.* Styles 3; stem herbaceous, 4-angled somewhat branched; leaves ovate with pellucid dots; sepals lanceolate. *Br. Fl.* 1. *p.* 335. *E. Fl. v.* iii. *p.* 324. *E. Bot. t.* 370.

Moist pastures, sides of ditches and rivulets, frequent. *Fl.* July. ♃. One foot to two feet high. *Panicles* terminal.

4. H. *perforatum*, Linn. *Common perforated St. John's-wort.* Styles 3; stem two-edged; leaves elliptic-oblong, obtuse, with pellucid dots; segments of the calyx lanceolate. *Br. Fl.* 1. *p.* 335. *E. Fl. v.* iii. *p.* 325. *E. Bot. t.* 295.

Woods, thickets, and hedges, &c. frequent. *Fl.* July. ♃.—One foot to two feet or more high, branched. There are minute dots on the tips of the *calyx*, *corolla*, and often on the *leaves*. This plant was formerly in great repute for its supposed tonic or stimulating qualities; it was also esteemed as a vulnerary, and became the "balm of the warrior's wound."

5. H. *dubium*, Linn. *Imperforate St. John's-wort.* Styles 3; stem obsoletely quadrangular; leaves elliptic-ovate, obtuse, destitute of pellucid dots; segments of the calyx elliptical. *Br. Fl.* 1. *p.* 336. *E. Fl. v.* iii. *p.* 326. *E. Bot. t.* 296.

Rather mountainous woods, but no where in great plenty. Ditch banks between Cullenagh and Stradbally; near Innistiogue, County of Kilkenny, and ditch banks on the road-side between Powerscourt gate and the lower Dargle gate. *Fl.* July, Aug. ♃.—Similar in many respects to the last; for which, perhaps, it is not unfrequently mistaken. *Corolla* often marked with small black dots.

6. H. *humifusum*, Linn. *Trailing St. John's-wort.* Styles 3; flowers terminal, subcymose; stem compressed, prostrate; leaves oblong, obtuse, glabrous. *Br. Fl.* 1. *p.* 336. *E. Fl. v.* iii. *p.* 326, *E. Bot. t.* 1226.

Gravelly, boggy pastures, and road-sides, frequent. *Fl.* July. ♃.—*Stem* slender, about a span long. *Corolla* with black dots, as well as the *calyx*, on which they are frequently seen near the edge, but not so distinctly so as in those of the next section.

* * * *Styles* 3. *Margins of the calycine segments with glandular serratures.*

7. H. *hirsutum*, Linn. *Hairy St. John's-wort.* Styles 3; calyx with (black) glandular serratures; stem erect, rounded, pubescent; leaves ovate, slightly downy beneath. *Br. Fl.* 1. *p.* 336. *E. Fl. v.* iii. *p.* 328. *E. Bot. t.* 116.

Woods and thickets. Plentiful at the Salmon-leap, near Leixlip, and at Woodlands. At Macedon Point, near Belfast; *Mr. Templeton.* *Fl.* July. ♃.—Two feet high. *Leaves* rather large, more or less downy, especially beneath.

8. H. *pulchrum.* Linn. *Small upright St. John's-wort.*

Styles 3; calyx with (black) glandular serratures; stem erect; leaves cordate, embracing the stem, glabrous. *Br. Fl.* 1. *p.* 337. *E. Fl. v.* iii. *p.* 329. *E. Bot. t.* 1227.

Dry woods and heaths, frequent. *Fl.* July. ♃.—One foot to two feet high, slender, erect, rigid, branched. *Flowers* beautiful, in loose panicles, yellow, tipped, before expansion, with red. *Anthers* red.

9. H. *elodes*, Linn. *Marsh St. John's-wort.* Styles 3; calyx with (reddish) glandular serratures, glabrous; leaves roundish, shaggy; stem rounded, creeping; panicle of few flowers. *Br. Fl.* 1. *p.* 337. *E. Fl. v.* iii. *p.* 330. *E. Bot. t.* 109.

Spongy bogs, not unfrequent. *Fl.* July, Aug. ♃.—A span long. *Flowers* few, panicled, terminal, pale yellow.

ORD. 13. CARYOPHYLLEÆ. *Juss.* Chickweed Family.

Sepals 4—5, continuous with the peduncle, distinct or cohering into a tube, persistent. Petals 4—5, hypogynous, in some (especially *Stellaria uliginosa)* almost perigynous, at other times, along with the stamens, inserted upon the receptacle, sometimes wanting. Stamens as many as, or twice the number of the petals, distinct or slightly united at the base: anthers 2-celled, opening longitudinally. Ovary inserted on a more or less evident torus. Styles 2—5. Capsule 1—5-celled, 2—5-valved, valves often dentiform. Placentæ central, in the 2—5-celled capsules, adhering to the edge of the dissepiments. Seeds indefinite. Albumen mealy, around which the embryo is generally more or less curved. Radicle directed to the hilum.—*Herbaceous plants, of the temperate and colder regions, rarely suffrutescent. Leaves opposite, often connate, entire, in* Arenaria rubra *and its allies having membranaceous stipules.*

Tribe I. *Sileneæ.* De Cand.

Sepals united into a cylindrical, 4 *or* 5-*toothed tube.*

1. DIANTHUS. *Linn.* Pink.

Calyx monophyllous, tubular, 5-toothed, with about 4, imbricated, opposited *scales* or *bracteæ* at the base. *Petals* 5, clawed. *Caps.* cylindrical, 1-celled.—Name derived from *ζευς, διος, Jupiter*, and *ανθος*, a *flower*; dedicated as it were to Deity itself; to express the high value that was set upon this charming genus of plants.

Decandria. Digynia.

1. D. *plumarius*, Sprengel. *Garden Pink.* Stem erect, few flowered; scales of the calyx mucronate, very short, appressed;

petals lanciniato-multifid, bearded; leaves sublinear, glaucous, with a rough margin.—*Dianthus hortensis, Schrad.*—*Spreng. Syst. v.* ii. *p.* 379.

I insert this on the authority of Mr. J. Drummond, who found it in an old quarry near Black Rock, Cork, and on cliffs at Hop Island, near Cork, and who remarks that this may be the plant mentioned by Smith, in his history of the County of Cork, under the name of *Dianthus Caryophyllus*, as growing on an old castle near Kinsale, which is now demolished, and that this pink is still to be found on old thatched houses in that neighbourhood. I have only seen one specimen, sent by Mr. Drummond to the late James Brodie, Esq. now in the possession of Mr. Stewart of Edinburgh; but until I have an opportunity of examining recent specimens, I cannot pronounce with certainty that I have been right in referring it to *D. plumarius*, to which species the Pheasant-eye Pink of the gardens belongs.

2. SAPONARIA. *Linn.* Soapwort.

Calyx tubular, 5-toothed, naked at the base. *Petals* with claws the length of the calyx. *Stamens* 10. *Stigmas* 2. *Capsule* 1-celled. Named from *Sapo*, soap. The plant yields a mucilaginous juice, which has been employed in lieu of that useful article. *Decandria Digynia.*

1. S. *officinalis*, Linn. *Common Soapwort.* Calyx cylindrical; leaves elliptic-lanceolate. *Br. Fl.* 1. *p.* 199. *E. Fl. v.* ii. *p.* 284. *E. Bot. t.* 1060.

Fields of Odin, above Rathfarnham, and on the banks of the Dodder, between Donnybrook and Rathfarnham, mostly with double flowers. County of Clare; *Mr. Andrews. Fl.* July, Aug. ♃.—One foot to one foot and a half high, with a rather stout cylindrical *stem*. *Leaves* ribbed, opposite, and connate. *Panicle* of numerous, large rose-coloured *flowers*. *Limb* of the corolla obcordate. This plant makes a lather with water.

3. SILENE. *Linn.* Catchfly.

Calyx tubular, often ventricose, 5-toothed. *Petals* 5-clawed, mostly crowned at the mouth, and the *limb* generally notched or bifid. *Caps.* 3-celled, 6-toothed, many-seeded.—Name, supposed to arise from σιαλον, *Saliva*, in allusion to the viscid moisture on the stalks of many species; hence too, the English name *Catchfly*. *Decandria Trigynia.*

* *Stems tufted, short. Peduncles single-flowered.*

1. S. *acaulis*, Linn. *Moss Campion.* Cæspitose; leaves linear, ciliated at the base; peduncles solitary, single-flowered; petals crowned, slightly notched. *Br. Fl.* 1. *p.* 201. *E. Fl. v.* ii. *p.* 299. *E. Bot. t.* 1081.

Plentiful on the limestone cliffs of Ben Bulben and other mountains in the County of Sligo. On trap rocks at Magilligan, County of Derry; *Mr. Templeton*, and *Mr. D. Moore*. *Fl.* June, July. ♃. —*Stems* short, two to three inches high, much branched and tufted. *Leaves* patent. *Flowers* beautiful purple.—One of the greatest ornaments of our mountains.

* * *Stems elongated. Flowers solitary or panicled. Calyx inflated, bladdery.*

2. S. *inflata*, Sm. *Bladder Campion.* Flowers numerous, panicled; petals deeply cloven with narrow segments, scarcely crowned; calyx inflated, reticulated; stem erect; leaves ovato-lanceolate. *Br. Fl.* 1. *p.* 201. *E. Fl. v.* ii. *p.* 292. *E. Bot. t.* 164.

Fields, gravelly banks, and road-sides, common. *Fl.* June—Aug. ♃.—Whole plant glaucous, variable in the size and shape of its *flowers*. *Petals* pure white.

3. S. *maritima*, With. *Sea Campion.* Panicles few flowered; petals with a shallow cleft, and broad segments, crowned; calyx inflated, reticulated; stems spreading; leaves ovato-lanceolate or spathulate. *Br. Fl.* 1. *p.* 202. *E. Fl. v.* ii. *p.* 293. *E. Bot. t.* 957.

Frequent upon the sea-shore and on mountain cliffs. Plentiful on the shore at Killiney and Howth, and on Ben Bulben and other mountains in the County of Sligo. *Fl.* June—Aug. ♃.—This, although it has smaller *stems* and *leaves* than the last, has larger *flowers;* Sir James E. Smith says that it is certainly distinct, and that its characters are preserved in cultivation, which I have long observed to be the case.

* * * *Stems elongated, branched. Flowers in leafy racemes, alternate.*

4. S. *anglica*, Linn. *English Catchfly.* Hairy and viscid; petals (small,) crowned, slightly bifid; calyces with setaceous teeth, ovate in fruit; and sometimes reflexed. *Br. Fl.* 1. *p.* 202. *E. Fl. v.* ii. *p.* 291. *E. Bot. t.* 1178.

Sandy and gravelly fields. Fields near Castletown, Bearhaven; *Mr. J. Drummond.* In rye fields, Benone, County of Derry; *Mr. D. Moore. Fl.* June, July. ⊙.

* * * * *Stem elongated. Flowers corymbose. Calyx clavate.*

5. S. *Armeria*, Linn. *Common or Lobel's Catchfly.* Panicles forked, corymbose, with crowded flowers; petals notched, and crowned with awl-shaped scales; calyx clavate, and as well as the leaves, glabrous; leaves ovato-lanceolate; stem viscid. *Br. Fl.* 1. *p.* 203. *E. Fl. v.* ii. *p.* 296. *E. Bot. t.* 1398.

Sandy corn field by the river Roe, County of Derry, sparingly; *Mr. D. Moore.* Field near Kilrush, County of Clare; *Mr. Andrews. Fl.* July, Aug. ⊙.—" A doubtful native," extremely common in gardens. *Flowers* purple (or sometimes white.) *Calyx* singularly clavate. "The *germen* and *capsule* are elevated upon a stalk; hence the lower part of the calyx is contracted, while the upper part is swollen by the enlargement of the capsule." *Hooker.*

4. Lychnis. *Linn.* Catchfly.

Calyx tubular, 5-toothed. *Petals* 5-clawed, crowned at the mouth; mostly divided at the border.—Name from λυχνος, a *lamp*, the thick cottony substance of the leaves of some species, or some similar plant, having been employed as wicks to lamps. *Decandria. Pentagynia.*

1. L. *Flos Cuculi*, Linn. *Meadow Lychnis or ragged Robin.* Flowers loosely panicled; petals 4-cleft; capsule roundish, 1-celled. *Br. Fl.* 1. *p.* 212. *E. Fl. v.* ii. *p.* 326. *E. Bot. t.* 573.

Moist meadows and pastures, frequent. *Fl.* June. ♃.—One to two feet high, hairy below, reddish-green, clammy above. *Leaves* lanceolate. *Calyx* and *flowerstalks* reddish-purple. *Petals* rose-coloured.

2. L. *dioica*, Linn. *Red or white Campion.* Flowers diœcious; capsule of 1-cell. *Br. Fl.* 1. *p.* 213. *E. Fl. v.* ii. *p.* 328.

α. flowers red. *L. dioica, E. Bot. t.* 1579.—*L. diurna, Sibth. Ox.*

β. flowers white. *E. Bot. t.* 1580.—*L. vespertina, Sibth. Ox.*

γ. flowers dingy white, with stamens and pistils together.

α. In rather moist shady places, as in Powerscourt demesne, near the Cherry orchard, and within the walls at Glenluce Castle, near the Giant's Causeway. β. and γ. In open situations, as in most of the sandy fields about Kilbarrick Church, Baldoyle and Portmarnock. *Fl.* α. about May—July.—β. γ. June—Sept. ♃.—One to two feet high, panicled above, pubescent, viscid in a slight degree above the joints of the *stem. Leaves* ovate, or ovato-lanceolate. *Calyx* in the anther bearing flowers subcylindrical, in the fruit bearing ones ovate. In β. the petals are pure white, and the flowers fragrant in the evening. The double red French Campion of the gardens is a variety of α.

5. Agrostemma. *Linn.* Cockle.

Calyx tubular, coriaceous, with 5 teeth. *Petals* 5-clawed, their border undivided. *Capsules* opening with 5 teeth, 1-celled.—Name, a αγρȣ στεμμα, *Crown of the field*, peculiarly applicable to our species, which is a great ornament to corn-fields. *Decandria. Pentagynia.*

1. A. *Githago*, Linn. *Corn Cockle.* Calyx much longer than the corolla; petals entire, destitute of a crown. *Br. Fl.* 1. *p.* 212. *E. Fl. v.* ii. *p.* 325. *E. Bot. t.* 741.—*Lychnis Githago, Lam.*—*De Cand.*

Corn fields, frequent, especially where the soil is of a sandy nature, as at Kilbarrick and other places near Howth. *Fl.* June, July. ♃.

Tribe II. *Alsineæ.* De Cand.

Sepals 4—5, distinct, or cohering only at the base.

6. Spergula. *Linn.* Spurrey.

Calyx of 5 sepals. *Petals* 5, undivided. *Capsules* ovate, 5-celled, 5-valved.—Name from *spargo,* to scatter; from the seeds being so widely dispersed. *Decandria. Pentagynia.*

1. S. *arvensis,* Linn. *Corn Spurrey.* Leaves whorled with minute membranaceous stipules at their base; stalk of the fruit reflexed; seeds more or less margined. *Br. Fl.* 1. *p.* 215. *E. Fl. v.* ii. *p.* 336.—*S. pentandra, E. Bot. t.* 1536.

Corn fields, frequent; especially in light sandy or stony soils. *Fl.* June—Aug. ♃.—*Stems* six to twelve inches high, swollen at the joints. *Leaves* one to two inches long, narrow, terete, glabrous or a little pubescent, in two fasicles from each joint, spreading in a whorled manner. *Panicle* of many *flowers. Petals* white, ovate, rather longer than the *calyx. Stamens* often five. *Seed* varying exceedingly in the width of its margin. It is said that cattle are fond of this plant, and that it is an object of culture in Holland.

2. S. *nodosa,* Linn. *Knotted Spurrey.* Leaves subulate, opposite, glabrous, connate, the lower ones sheathing; upper ones bearing clusters of young leaves; petals much longer than the calyx. *Br. Fl.* 1. *p.* 216. *E. Fl. v.* ii. *p.* 338 *E. Bot. t.* 694.

Wet, sandy, and marshy places, frequent. *Fl.* July, Aug. ♃.—Three to four inches high, branched and decumbent at the base, where the leaves are three-fourths of an inch long, but they gradually become smaller upwards. *Flowers* large, white, three to four on the terminal branches, peduncled. Whole plant glabrous. *Calyx* nerveless.

3. S. *saginoides,* Linn. *Pearl-wort Spurrey.* Glabrous; leaves subulate, acute, awnless; peduncles solitary very long; petals as long as the calyx; capsule twice as long. *Br. Fl.* 1. *p.* 216. *E. Fl. v.* ii. *p.* 338. *E. Bot. t.* 2105.

On mountains near Bantry; *Miss Hutchins.* On Bear Island, near the Telegraph; *Mr. J. Drummond. Fl.* June, July. ♃.—*Stems* many from the root, procumbent below, two or three inches tall. *Leaves* numerous and rather long at the base; shorter, in remote pairs, upon the *stem. Flowers* drooping before and after expansion.

4. S. *subulata,* Swartz. *Awl-shaped Spurrey.* Leaves subulate, subciliated, tipped with a bristly point; peduncles solitary, very long; petals and capsules as long as the calyx. *Br. Fl.* 1. *p.* 216. *E. Fl. v.* ii. *p.* 339. *E. Bot. t.* 1082.—*S. saginoides, Curt.*—*S. procumbens, Linn.*

Dry, gravelly, and stony places. Between Portstewart and Portrush; *Mr. D. Moore.* Cunnamara; *Mr. Shuttleworth. Fl.* July, Aug. ♃.—This comes very near the last species, nor is it easy at all times to distinguish them. Both have very much the habit of *S. procumbens.*

7. ELATINE. *Linn.* Water-wort.

Calyx 3—4 parted, persistent, inferior. *Petals* 3—4. *Stam.* 3—4, or 6—8. *Styles* 3 or 4, very short. *Capsules* 3—4-valved, 3—4-celled, many-seeded, the dissepiments alternate with the valves. *Seeds* cylindrical, curved, furrowed, and transversely striated, attached to a central receptacle.—Name said to be derived from ελατη, a *pine,* to which nothing can be less similar than our present plant.

Octandria. Tetragynia.

.. E. *hexandra,* De Cand. *Small Water-wort.* Leaves opposite, rough, with minute points, spathulate; flowers alternate, pedicellate, hexandrous, tripetalous. *Br. Fl.* 1. *p.* 185.—*E. tripetala, Sm. E. Fl. v.* ii. *p.* 243.—*E. Hydropiper, E. Bot. t.* 955. (not *Linn.*)

Margins of lakes, rare. On the muddy border of Castlewellan Lake, County of Down, where it was first pointed out to me, in 1808, by Mr. Templeton. Abundant in Enagh Lough, near Derry, and by the side of the river Bann, below Coleraine; *Mr. D. Moore. Fl.* July, Aug. ⊙.—A minute, procumbent, much branching *plant,* with small solitary *flowers. Petals* rose-coloured. *Seeds* most beautifully ribbed, and transversely striated.

8. SAGINA. *Linn.* Pearl-wort.

Calyx of 4 sepals. *Petals* 4, (shorter than the calyx.) *Capsule* of 1-cell, 4 valves.—Name signifying *meat which fattens,* but which is little applicable to any of the minute plants belonging to this genus. *Tetrandria. Tetragynia.*

1. S. *procumbens,* Linn. *Procumbent Pearl-wort.* Perennial, glabrous; stems procumbent; leaves shortly mucronate; petals much shorter than the calyx. *Br. Fl.* 1. *p.* 77. *E. Fl. v.* 1. *p.* 238. *E. Bot. t.* 880.

Waste places and dry pastures, frequent. *Fl.* May—Aug. ♃.—*Stems* spreading, two to four inches long, often sending out roots from different parts of the stem at the insertion of the leaves, and these throwing up new plants. *Leaves* linear-subulate, connate, membranous at the margins at the base. *Peduncles* solitary, axillary and terminal, about an inch long. *Flowers* at first drooping.

2. S. *apetala,* Linn. *Annual small-flowered Pearl-wort.* Annual; stems slightly hairy, erect or ascending; leaves aristate, fringed; petals much smaller than the calyx. *Br. Fl.* 1. *p.* 77. *E. Fl. v.* 1. *p.* 240. *E. Bot. t.* 881.

Dry gravelly places, frequent. *Fl.* May, June. ⊙.—More slender than the last, smaller and annual. *Leaves* narrower, more bristle-pointed, more glaucous, and slightly hairy at the margins, sometimes glabrous. *Stems* also hairy. *Petals* always present, according to Mr. W. Wilson, obcordate, or wedge-shaped and truncated. *Hooker.*

3. S. *maritima*, Don. *Sea Pearl-wort.* Annual, glabrous; stems erect or procumbent only at the base; leaves fleshy, obtuse; petals none; calyx rather longer than the capsule. *Br. Fl.* 1. *p.* 78. *E. Bot. t.* 2195.—*S. stricta, Fries.*

Sea coast, not unfrequent. Gravelly places near Ringsend, at Narrow-water near Newry, and other places on the coast, also on rocks on the shore below Sligo, very abundant. *Fl.* May—Aug. ☉.—A very distinct and well marked species, with a reddish or purplish tinge, especially on the stems and calyces.

9. ARENARIA. *Linn.* Sandwort.

Calyx of 5 sepals. *Petals* 5, undivided. *Capsule* 1-celled, many-seeded.—Named from *arena*, sand; the greater number of species growing in sandy soils.

Decandria. Trigynia.

* *Stipules none.*

1. A. *peploides*, Linn. *Sea-side Sandwort.* Glabrous; leaves ovate, acute, fleshy; calyx acute, ribless. *Br. Fl.* 1. *p.* 206. *E. Fl. v.* ii. *p.* 305. *E. Bot. t.* 189.

On sandy sea shores, frequent, *Fl.* July. ♃.—*Root* long and creeping, slender. *Stems* decumbent at the base; branches erect, leafy upwards. *Leaves* large, decussate, connate, fleshy, shining, a little curved. *Flowers* solitary, or two or three together, in the axils of the upper leaves, nearly sessile, closing in the shade. *Petals* white, small, scarcely longer than the *calyx*, distant, broadly ovate, shortly clawed: surrounding the *germen* are ten *glands*, alternating with the *stamens*. *Capsule* large, roundish, three to five valved, with comparatively few, large, and black *seeds*. The habit of this is very different from the rest of the genus, and it is said that the flowers are diœcious. It is certain that very extensive patches of the plant have abortive flowers, as Doctor Hooker well remarks. The curved embryo, common to all the plants of this order, is very conspicuous in the large seeds of this species when in a recent state.

2. A. *trinervis*, Linn. *Three-nerved Sandwort.* Leaves ovate, acute, petiolate, 3- (rarely 5-) nerved, ciliated; flowers solitary; calyces rough on the keel with 3 obscure ribs. *Br. Fl.* 1. *p.* 206 *E. Fl. v.* ii. *p.* 307. *E. Bot. t.* 1483.

Shady woods and moist places. Hedge banks by the road-side between Powerscourt gate and the Dargle gate, and other places in the County of Wicklow, not unfrequent. *Fl.* May. ♃.—*Stems* one foot high, much branched, pubescent. Upper *leaves* sessile. *Flowerstalks* an inch or more long, from the forkings of the extremities of the *stem*; in fruit spreading, the upper part deflexed. *Petals* oblong, ovate, white, scarcely longer than the acute *segments* of the *calyx*.

3. A. *serpyllifolia*, Linn. *Thyme-leaved Sandwort.* Leaves ovate, acute, subscabrous, sessile; calyx hairy, its outer sepals 5-ribbed. *Br. Fl.* 1. *p.* 206. *E. Fl. v.* ii. *p.* 307. *E. Bot. t.* 923.

Walls and dry waste places, frequent. *Fl.* June. ⊙.—Two to six inches high, erect or procumbent, much branched, pubescent. *Leaves* rather small, rigid. *Flowers* white, on short stalks, from the forkings of the upper part of the stem, or the axils of the leaves. *Petals* as long as the calyx.

4. A. *ciliata*, Linn. *Fringed Sandwort.* Leaves spathulate, roughish, ciliated at the base; stems much branched, procumbent; flowers terminal, solitary; sepals lanceolate, acute, with many ribs half as long as the corolla. *Br. Fl.* 1. *p.* 206. *E. Fl. v.* ii. *p.* 310. *E. Bot. t.* 1745.

Limestone cliffs on Sea-Fin, and Ben Bulben, County of Sligo. *Fl.* June, July. ♃.—*Leaves* in pairs, rather fleshy. *Flowers* terminal, on long stalks, large, white, conspicuous.

* * *Stipules at the base of each pair of leaves.*

5. A. *rubra*, Linn. *Purple Sandwort.* Stems prostrate; leaves narrow, linear, acute, plane, somewhat fleshy, tipped with a very minute bristle; stipules ovate, cloven; capsule as long as the calyx; seeds compressed, angular, roundish. *Br. Fl.* 1. *p.* 208. *E. Fl. v.* ii. *p.* 311. *E. Bot. t.* 852.

Gravelly or sandy soils, frequent. *Fl.* June. ⊙.—Very much branched and spreading. *Stipules*, a pair of ovate, acute, white, membranaceous *scales*, united at their base. *Flowers* numerous, in the axils of the upper *leaves*, solitary. *Calyx* nerveless, and, as well as the rather short *peduncles*, glandular and viscid. *Petals* ovate, red, about as long as the calyx. *Peduncles*, after flowering, slightly bent back. The *seeds* constitute the essential character by which this is known from the following species.

6. A. *marina*, Oed. *Sea-Spurrey Sandwort.* Stem prostrate; leaves semicylindrical, fleshy, awnless; stipules ovate, cloven; capsule longer than the calyx; seed compressed, smooth, with a broad, membranous, pellucid border. *Br. Fl.* 1. *p.* 208. *E. Fl. v.* ii. *p.* 311. *E. Bot. t.* 358.—*A. rubra*, *β. Linn.*

Frequent upon the sea-coast. *Fl.* June, July. ⊙. or ♂.—Much larger and stouter in all its parts than the last, besides the difference arising from the seed.

7. A. *verna*, Linn. *Vernal Sandwort.* Stems numerous, panicled above; leaves subulate, acute, when dry 3-nerved; petals obovate, and as well as the capsule longer than the lanceolate acuminated 3-nerved calyx. *Br. Fl.* 1. *p.* 206. *E. Fl. v.* ii. *p.* 300. *E. Bot. t.* 512.

Trap rocks on Magilligan, County of Derry, where it was first observed by Mr. Templeton. Between Lunenagh Castle and Kilferna, County of Clare; *Doctor Osborne.* Island of Arran; *Mr. R.*

Ball. *Fl.* May, June. ♃.—*Stem* three to four inches high, slightly hairy, as are the *calyces* and *peduncles.* Lower *leaves* crowded, often curved, upper ones distinct.

10. Cerastium. *Linn.* Mouse-ear Chickweed.

Calyx of 5 sepals. *Petals* 5, cloven. *Capsules* bursting at the top with 10 teeth (5 in *C. aquaticum.*)—Name, *κερας*, a *horn*, from the rather long and curved capsules of some species.
Decandria. Pentagynia.

* *Petals not longer than the Calyx.*

1. C. *vulgatum*, Linn. *Broad-leaved Mouse-ear Chickweed.* Hairy, nearly erect, viscid above; leaves ovate; bracteas herbaceous; petals as long as the calyx; flowers subcapitate; calyces oblong, longer than the pedicels. *Br. Fl.* 1. *p.* 213. *E. Fl. v.* ii. *p.* 330. *E. Bot. t.* 789.—*C. visocum, Huds.—With.* —*Curt. Lond. ed.* 1. *with a fig.*

Fields, pastures, and road-sides, common. *Fl.* April—June. ⊙.—Six to ten inches high, branched below, dichotomous above. *Petals* narrow, bifid at the extremity. *Capsules* cylindrical, as long again as the *calyx*, curved upward.

2. C. *viscosum*, Linn. *Narrow-leaved Mouse-ear Chickweed.* Hairy, viscid, spreading; leaves oblong, lanceolate; bracteas membranaceous at the margin; flowers somewhat panicled; calyces oblong, shorter than the pedicels. *Br. Fl.* 1. *p.* 213. *E. Fl. v.* ii. *p.* 230. *E. Bot. t.* 790.—*C. vulgatum, Huds.—With.*

Pastures, waste places, and wall tops. *Fl.* the whole summer. ⊙.—Much resembling the last, but a larger, coarser, and spreading plant, with longer and narrower *leaves. Calyces* shorter than the *footstalks* in general, especially when in fruit.

3. C. *semidecandrum*, Linn. *Little Mouse-ear Chickweed.* Hairy, viscid, suberect; *leaves* oblongo-ovate; *bracteas* membranaceous at the margin; flowers somewhat panicled; calyces ovate shorter than the pedicel; segments with broad membranaceous margins; petals slightly cloven; stamens 5. *Br. Fl.* 1. *p.* 213. *E. Fl. v.* ii. *p.* 331. *E. Bot. t.* 1630.—*C. pumilum, Curt.*

Dry waste places in sandy soil, and on wall tops, frequent. *Fl.* March, April. ⊙.—This, as Sir James E. Smith well observes, displays itself, in early spring, on every wall, and withers away before the *C. viscosum* begins to put forth its far less conspicuous blossoms. *Calyx-segments* acute. Mr. W. Wilson thinks this may be but an early flowering state of *C. viscosum.*

4. C. *tetrandrum*, Curt. *Four-cleft Mouse-ear Chickweed.* Hairy and somewhat viscid; flowers 4-cleft with four stamens;

petals inversely heart-shaped, shorter than the taper-pointed calyx, which is nearly as long as the capsule. (Smith.) *Br. Fl.* 1. *p.* 214. *E. Fl. v.* ii. *p.* 332.—*Sagina cerastoides, E. Bot. t.* 166.

Waste grounds, walls, and sandy places, especially near the sea. Hill of Howth, on the Sutton side, where it was first observed, above thirty years ago, by the late Mr. Underwood. *Fl.* May, June. ⊙.—*Herb* light green. *Stems* several, spreading, two to six inches high. *Leaves* elliptic-oblong. *Petals* four, white.

* * *Petals longer than the calyx.*

5. C. *arvense*, Linn. *Field Chickweed.* Leaves linear-lanceolate, more or less pubescent, especially near the base, twice as long as the calyx. *Br. Fl.* 1. *p.* 214. *E. Fl. v.* ii. *p.* 333. *E. Bot. t.* 93.

Dry, sandy, and gravelly places. Plentiful between Clontarf and Howth, and many other places along the coast. *Fl.* June, July. ♃.—*Stems* branched and decumbent at the base, a span long, slender. *Flowers* large, pearl white, two or three on terminal stalks. *Capsules* scarcely longer than the calyx.

6. C. *aquaticum*, Linn. *Water Chickweed.* Upper leaves cordato-ovate; flowers solitary; fruit pendulous. *Br. Fl.* 1. *p.* 215. *E. Fl. v.* ii. *p.* 335. *E. Bot. t.* 538.

Sides of rivers and ditches. *Fl.* July. ♃.—I have not seen Irish specimens of this plant, but the Rev. Dr. Hincks assures me that there are specimens of it in the *Herbarium* of the Cork Institution, gathered on the banks of the river Lee. *Stems* one to two feet long, branched and straggling. *Leaves* large, lower ones only on footstalks, with short scattered hairs on their surface and margins. The *capsule* opens with five teeth or valves.

11. STELLARIA. *Linn.* Stitchwort.

Calyx of 5 sepals. *Petals* 5, deeply cloven. *Capsules* opening with 6 teeth, many-seeded.—Name from *stella*, a star; because the corolla is spread in a star-shaped like manner.

Decandria. Trigynia.

1. S. *media*, With. *Common Chickweed or Stitchwort.* Leaves ovate; stems procumbent with an alternate line of hairs on one side; petals 2-parted; stamens 5—10. *Br. Fl.* 1. *p.* 204. *E. Fl. v.* ii. *p.* 301. *E. Bot. t.* 211.—*Alsine media, Linn.*

Road-sides and waste places, abundant. *Fl.* almost the whole year. ⊙.—*Stem* with alternate lines of hairs between each pair of leaves, by which the species is admirably distinguished. *Leaves* on footstalks, except the uppermost; glabrous. *Flowers* small, white, on solitary axillary and terminal stalks. It is frequently given to birds, who are fond of its seeds.

2. S. *holostea*, Linn. *Greater Stitchwort.* Stem nearly erect; leaves lanceolate, much acuminated, finely serrulated; petals inversely heart-shaped, bifid, twice as long as the nerveless calyx. *Br. Fl.* 1. *p.*204. *E. Fl. v.* ii. *p.* 301 *E. Bot. t.* 537.

Woods and hedges, frequent. *Fl.* May. ♃.—*Plant* one foot to one foot and a half high, rather rigid and brittle, somewhat glaucous. *Flowers* large, and with much broader *petals* than the two following, pure white. *Panicle* of few flowers, leafy.

3. S. *graminea*, Linn. *Lesser Stitchwort.* Stem nearly erect, acute, entire; panicle much branched; petals very deeply cleft, segments linear, scarcely longer than the 3-nerved leaves of the calyx. *Br. Fl.* 1. *p.* 204. *E. Fl. v.* ii. *p.* 392. *E. Bot. t.* 803.

Dry pastures, fields and heaths, common. *Fl.* May. ♃.—One foot high, more slender than the last, and readily distinguished by its much smaller *flowers*, large and spreading *panicle*, three-nerved *calyx*, and entire *leaves*.

4. S. *glauca*, With. *Glaucous Marsh Stitchwort.* Stem nearly erect; leaves linear-lanceolate, entire, glabrous, flowers upon long solitary, axillary footstalks; petals very deeply cleft, their segments much longer than the 3-nerved calyx. *Br. Fl.* 1. *p.* 204. *E. Fl. v.* ii. *p.* 303. *E. Bot. t.* 825.

Wet marshy places and margins of lakes. Plentiful in Glencree, between Enniskerry and Lough Bray. *Fl.* June, July. ♃.—Equally slender with the last, one foot high. *Flowers* next in size to those of *S. holostea.* Readily known from that and *S. graminea* by its narrower, glaucous *leaves*, solitary, axillary *flowers*, and the narrow *sepals*, which, like the last, are three-nerved.

5. S. *uliginosa*, Murr. *Bog Stitchwort.* Leaves ovato-lanceolate, entire, with a callous tip; flowers with dichotomous panicles; petals 2-parted, shorter than the leaflets of the calyx which are combined at the base. *Br. Fl.* 1. *p.* 204. *E. Fl. v.* ii. *p.* 303. *E. Bot. t.* 1074.—*Larbræa, St. Hil. De Cand. Lindl.*

In ditches and rivulets, frequent. *Fl.* June. ⊙.—"This species, besides having the *sepals* combined at the base, has the *stamens* and *pistils* truly perigynous. Hence St. Hilaire, who makes of it his Genus *Larbræa,* (in honour of the *Abbe de Larbre,*) seems to think it more allied to his *Paronychiæ* than to the *Caryophylleæ.* Its general habit, however, is surely that of a *Stellaria,* from all the other species of which it is distinguished by its comparatively minute petals." *Hooker.*

6. S. *cerastoides*, Linn. *Alpine Stitchwort.* Stems decumbent, with an alternate hairy line; leaves oblongo-spathulate; peduncles two or three, mostly terminal, downy as is the calyx which is about half the length of the bifid corolla. *Br. Fl.* 1. *p.* 205. *E. Fl. v.* ii. *p.* 305. *E. Bot. t.* 911.

On a high mountain near Bantry, rare; *Miss Hutchins.* *Fl.* July, Aug. ♃.—Four to six inches long. Lower part of the *stem* bare of leaves and much branched. *Leaves* subsecund and subfalcate, their points callous. *Flowers* large, pure white. Intermediate between *Stellaria* and *Cerastium.*

ORD. 14. LINEÆ. *D C.* Flax Family.

Sepals 3—5, with an imbricated æstivation. Petals 3—5, unguiculate, alternate with the sepals and with a twisted æstivation. Stamens as many as there are petals, united at their base, alternate with the petals, with intermediate teeth, or abortive filaments: anthers ovate, 2-celled. Ovary subglobose, generally with as many cells and capitate styles as there are sepals, rarely fewer. Capsule globose, often apiculated with the base of the persistent styles, each cell imperfectly separated into two, by a spurious dissepiment, and opening with two valves at the extremity. Albumen scarcely any. Embryo straight, fleshy and oily. Radicle towards the hilum.—*Herbs or undershrubs. Leaves entire, without stipules. Flowers pedunculated. Petals very fugacious.*

1. LINUM. *Linn.* Flax.

Calyx of 5 sepals, persistent. *Petals* 5. *Capsules* globose, mucronate, with ten valves and ten cells. *Seeds* ovate, compressed.—Named from *Lin, thread,* in Celtic, (*Theis*).

Pentandria. Pentagynia.

* *Leaves alternate.*

1. L. *usitatissimum,* Linn. *Common Flax.* Leaves linear, acute, lanceolate; calycine leaves, ovate, acute, 3-nerved; petals crenate; stem subsolitary. *Br. Fl.* 1. *p.* 147 *E. Fl. v.* ii. *p.* 118. *E. Bot. t.* 1537.

Corn fields, not unfrequent. *Fl.* July. ⊙.—One foot or one foot and a half high, slender, branched above. *Leaves* distant. *Flowers* large, purplish blue. This yields, in the strong fibres of its bark, the valuable *flax* of commerce, whilst from the seed a precious oil is expressed, known by the name of *Lint-seed oil.* These seeds, too, are highly mucilaginous, and much employed in poultices, fomentations, &c.

2. L. *perenne,* Linn. *Perennial blue Flax.* Leaves linear, acute; calycine leaves obovate, obtuse, obscurely 5-ribbed, glabrous; stems numerous from the same root. *Br. Fl.* 1. *p.* 147. *E. Fl. v.* ii. *p.* 118. *E. Bot. t.* 40.

Limestone grounds near Monkstown, County of Cork; *Mr. J. Drummond. Fl.* June, July. ♃.

3. L. *angustifolium*, Huds. *Narrow-leaved pale Flax.* Leaves linear-lanceolate, acuminate, 3-nerved; calycine leaves elliptical, 3-ribbed mucronate as well as the capsule. *Br. Fl.* 1. *p.* 147. *E. Fl. v.* ii. *p.* 119. *E. Bot. t.* 381.

Sandy fields and gravelly places. Fields above Dundrum, on Killiney Hill, and in the Phœnix Park, near Chapelizod, &c. *Fl.* July. ♃.—All the three species of this division have a great similarity in their habit. The best characters, as Sir James E. Smith remarks, are taken from the calyx. In the present the petals are of a paler blue than in the preceding species, and smaller in proportion to the size of the calyx.

* * *Leaves opposite.*

4. L. *catharticum*, Linn. *Purging Flax.* Leaves opposite, oblong; stem dichotomous above; petals acute. *Br. Fl.* 1. *p.* 148. *E. Fl. v.* ii. *p.* 119. *E. Bot. t.* 382.

Dry pastures, common. *Fl.* June, July. ⊙.—*Stem* slender, upright, two to six inches high. *Flowers* gracefully drooping before expansion, white, small.

2. Radiola. *Gmel.* Flax-seed.

Calyx of 4 sepals, united to their middle, and mostly 3-cleft. *Petals* 4. *Capsules* of eight cells and eight valves.—"Name from *radius*, a *ray*, I presume in consequence of the ray-like segments of the calyx." *Hook.* *Tetrandria. Tetragynia.*

1. R. *millegrana*, Sm. *Thyme-leaved Flax-seed. Br. Fl.* 1. *p.* 79. *E. Fl. v.* ii. *p.* 243. *E. Bot. t.* 890.—*R. linoides, Gmel.* —*De Cand.*—*Linum Radiola, Linn.*

Moist, gravelly, and boggy soils. Plentiful about Ballylickey, near Bantry, and near Bandon. It has also been observed to grow in the Rosses, small islands on the coast on Donegal; *Mr. E. Murphy.* County of Clare; *Mr. Andrews.* County of Derry; *Mr. D. Moore.* *Fl.* July, Aug. ⊙.

Ord. 15. TILIACEÆ. *Juss.* Linden Family.

Sepals 4—5, with a valvate æstivation, without bracteas. Petals 4—5, alternate with the sepals, entire, with a little hollow at the base. Stamens distinct, generally indefinite: anthers oval or roundish, 2-celled, opening longitudinally. Glands on the stalk of the ovary, as many as there are petals, and opposite to them. Ovary 1, composed of 4—10 combined carpels: styles as many, united into one: stigmas often free. Capsule of several cells. Seeds numerous. Albumen fleshy. Embryo straight: cotyledons plane, foliaceous.—*Trees or shrubs, rarely herbs, of which one genus alone is European. Leaves simple, stipulated, often toothed. Flowers axillary.*

1. Tilia. *Linn.* Lime.

Calyx 5-partite, deciduous. *Petals* 5, with or without a *nectary* at the base. *Fruit* coriaceous, 5-celled, without valves, cells 1—5, 2-seeded.—Name of obscure origin.

Polyandria. Monogynia.

1. T. *europæa*, Linn. *Common Lime or Linden Tree.* Nectaries none; leaves twice the length of the footstalks, quite glabrous, except a woolly tuft at the origin of each vein beneath; cymes many-flowered; fruit coriaceous, downy. *Br. Fl.* 1. *p.* 259. *E. Fl. v.* iii. *p.* 17. *E. Bot. t.* 610.—*T. intermedia, De Cand. Lindl.*

Woods and hedge rows, probably not indigenous. *Fl.* July. ♄.—A large handsome tree, its flowers yellowish-green, on a stalked cyme, springing from a large lanceolate foliaceous *bracteæ*, which falls off with the fructified cymes. *Fruit* generally one-celled and one-seeded. There are fine specimens of this ornamental tree to be seen at the old lime walk in Stillorgan Park. Sir James E. Smith states, that an ancient lime, of great magnitude, which grew where the ancestors of Linnæus had long resided, is said to have given them their family name, *Linn* being Swedish for a lime tree. The bark of this, and, perhaps, some other species, makes the Russia garden-mats called *bast.* Bees collect much honey from the flowers.

2. T. *parvifolia*, Ehrh. *Small-leaved Lime.* Nectaries none; leaves smooth above, glaucous beneath, with scattered as well as axillary hairy blotches; umbels compound, many-flowered; fruit roundish, brittle, nearly glabrous. *Br. Fl.* 1. *p.* 259. *E. Fl. v.* iii. *p.* 20. *E. Bot. t.* 1705.

Woods in the County of Down; *Mr. Templeton.* "Perhaps the only native lime tree of Britain," *Mr. Edward Forster. Fl.* Aug. ♄.

Ord. 16. ACERINEÆ. *Juss.* Maple Family.

Calyx 5-rarely 4—9-partite. Petals the same in number, inserted around an hypogynous disk, alternate with the lobes of the calyx, often of the same colour, rarely none. Stamens on the hypogynous disk, often 8, rarely 5—12; anthers oblong. Ovary didymous. Style 1; stigma 2. Fruit a samara, of 2 indehiscent carpels at length separating, 1-celled, 1—or 2-seeded. Seeds fixed to the base of the cell, without albumen, but with a thickened inner coat to the testa. Embryo curved or convolute. Cotyledons foliaceous, wrinkled: radicle inferior.—

Trees of the temperate parts of the northern hemisphere, of great beauty. Leaves simple, often lobed. Flowers racemose or corymbose, axillary, often, by imperfection, diœcious or polygamous.

1. ACER. *Linn.* Maple.

Calyx 5-cleft, inferior. *Petals* 5. *Germen* 2-lobed. *Capsules* 2, united at the base, each with a long winged membrane, (hence called a *Samara*), 1-celled, 1—2-seeded.—Name from *acer*, *sharp* or *hard* (*ac*, Celtic) on account of the hardness of the wood, which was employed in fabricating spears, pikes, &c.
Octandria. Monogynia.

1. A. *Pseudo-platanus*, Linn. *Greater Maple, or Sycamore.* Leaves 5-lobed, unequally serrated; racemes pendulous subtomentose. *Br. Fl.* 1. *p.* 174. *E. Fl. v.* ii. *p.* 230. *E. Bot. t.* 303.

In hedges, plantations, and about houses, not indigenous. *Fl.* May, June. ♄.—A large *tree*, with spreading *branches* and ample *leaves*. *Flowers* greenish. *Fruit* with two membranaceous wings, which greatly aid in its dispersion. The *wood* is used for bowls and trenchers, and other turnery. It is one of the best trees for planting near the sea-coast.

2. A. *campestre*, Linn. *Common Maple.* Leaves 5-lobed, obtuse, somewhat cut; clusters corymbose, erect. *Br. Fl.* 1. *p.* 174. *E. Fl. v.* ii. *p.* 230. *E. Bot. t.* 304.

Hedges about Cork, scarcely indigenous; *Mr. J. Drummond.* Hedges at Ballycullen, County of Dublin; *Dr. Brinkley, Bishop of Cloyne.* County of Derry; *Mr. D. Moore. Fl.* May, June. ♄.—A small *tree*, with rough bark, full of deep fissures. *Leaves* small. The wood is compact, of a fine grain, sometimes beautifully veined; celebrated among the ancients for tables.

ORD. 17. GERANIACEÆ. *Juss.* Crane's-bill Family.

Sepals 5, persistent, more or less unequal, with an imbricated æstivation, one of them lengthened into a spur, connate and continuous with the peduncle. Petals 5, (rarely 4 or none,) alternate with the sepals, unguiculate, equal or unequal, hypogynous or perigynous. Stamens monadelphous, rarely wholly distinct, twice or thrice as many as there are petals, some of them occasionally sterile, equal or unequal. Ovary of 5 cells or pieces, placed round a subpentagonal elongated axis: styles 5, combined upon the axis into one: stigmas 5. Carpels (often called (*cocculi*) 5, submembranaceous, 1-celled, 1-seeded, eventually separating from the central indurated axis and terminating by the persistent style, which springs from the base and curls upwards. Seed solitary, pendulous, without albumen: embryo curved: radicle directed to the base of the cell: cotyledons foliaceous, convolute and variously plaited.—*Very generally diffused herbs or shrubs, with the stems jointed, at least in the younger and herbaceous kinds, and separable at the joints. Leaves opposite at the joints; or alternate, and then opposite the peduncle. Cirrhi none.*

1. GERANIUM. *Linn.* Crane's-bill.

Style 1. *Calyx* of 5 sepals. *Corolla* of 5 regular petals. *Glands* 5. *Fruit* beaked, separating into 5, 1-seeded capsules, each with a long naked awn.—Name; γερανιον, of the Greeks, from γερανος, a *Crane;* the fruit resembling the beak of a Crane. *Monadelphia. Decandria.*

* *Peduncles* 1-*flowered.*

1. G. *sanguineum*, Linn. *Bloody Crane's-bill.* Peduncles 1-flowered; leaves nearly orbicular in 5—7 deep lobes, each of which is trifid. *Br. Fl.* 1. *p.* 311. *E. Fl. v.* iii. *p.* 242. *E. Bot. t.* 272.

Rocky and stony places. On the east side of Howth, also on Killiney Hill and other places along the coast. *Fl.* July. ♃.—One foot to a foot and a half high, swelling at the joints. *Peduncles* axillary, long. *Flowers* large, handsome, purple.

* * *Peduncles* 2-*flowered.*

2. G. *sylvaticum*, Linn. *Wood Crane's-bill.* Peduncles 2-flowered, leaves subpeltate with 5 or 7 deep and acute lobes, which are cut and serrated; stem erect, corymbose; petals slightly notched; capsules keeled, hairy, not wrinkled. *Br. Fl.* 1. *p.* 312. *E. Fl. v.* iii. *p.* 234. *E. Bot. t.* 121.

Woods and rocky places, about the Giant's Causeway, and other places in the County of Antrim; *Mrs. Mansfield* and *Mr. Templeton. Fl.* June, July. ♃.—One foot to three feet high. *Flowers* purple.

3. G. *pyrenaicum*, Linn. *Mountain Crane's-bill.* Peduncles 2-flowered; leaves reniform 5—7-lobed; lobes oblong, obtuse, trifid, and toothed at the extremity; stem erect, branched; petals with a deep notch twice as long as the calyx. *Br. Fl.* 1. *p.* 312. *E. Fl. v.* iii. *p.* 239. *E. Bot. t.* 405.

Fields and waste places; very common near Dublin. *Fl.* June, July. ♃.—Two to three feet high, much branched. Readily distinguished from *G. molle* by its axillary *peduncles*, and much larger *flowers.*

4. G. *lucidum*, Linn. *Shining Crane's-bill.* Peduncles 2-flowered; leaves roundish 5-lobed; lobes trifid and notched, obtuse with a short mucro; calyx pyramidal, angular, dentato-

tuberculate; capsules wrinkled. *Br. Fl.* 1. *p.* 312. *E. Fl. v.* iii. *p.* 236. *E. Bot. t.* 75.

Rocks, walls, and roofs of houses; on old thatched roofs in the suburbs of Killarney and Ennis; on walls near both places, and on Feltrum Hill. On walls near Cork; *Mr. J. Drummond.* Plentiful at Oldcastle, Loughcrew, and other places in the County of Cavan; *Rev. Mr. Halpin.* Cavehill, near Belfast; *Mr. F. Whitla. Fl.* June, July. ⊙.—*Stems* spreading, shining, (as are the leaves,) brittle, swelling at the joints. *Leaves* small, lower ones often of a fine red. *Flowers* small, rose-coloured.

5. G. *robertianum*, Linn. *Stinking Crane's-bill*, or *Herb Robert.* Peduncles two-flowered; leaves ternate or quinate; leaflets pinnatifid, segments mucronate; calyx angular, hairy; capsules wrinkled. *Br. Fl.* 1. *p.* 312. *E. Fl. v.* iii. *p.* 235. *E. Bot. t.* 1486.

Woods, thickets, and stony waste grounds, frequent. *Fl.* summer months. ⊙.

6. G. *molle*, Linn. *Dove's-foot Crane's-bill.* Stalks two-flowered, alternate, opposite to the leaves, which are rounded, many-lobed, notched and downy; capsules numerously wrinkled, smooth; seeds without dots. *Br. Fl.* 1. *p.* 213. *E. Fl v.* iii. *p.*237. *E. Bot. t.* 778.

Dry pastures and waste places, common. *Fl.* April—Aug. ⊙.—*Stems* spreading, procumbent, with long hairs. *Leaves* lobed; *lobes* broad, cut. *Flowers* small, purple. *Seeds* smooth.

7. G. *rotundifolium*, Linn. *Round-leaved Crane's-bill.* Peduncles two-flowered; leaves roundish or reniform, lobed and cut, downy; petals entire, the length of the calyx, capsules smooth, hairy; seeds dotted, reticulated. *Br. Fl.* 1. *p.* 313. *E. Fl. v.* iii. *p.* 240. *E. Bot. t.* 157.

Waste grounds and barren pastures. In several small islands near Cove, and by the road between Cork and Glanmire. *Fl.* June, July. ⊙.—Distinguished from the preceding by the entire *petals. Capsules* turgid, thin, slightly keeled, clothed with prominent hairs, the surface quite even, never wrinkled.

8. G. *pusillum*, Linn. *Small-flowered Crane's-bill.* Peduncles two-flowered; flowers pentandrous; petals notched; leaves rounded or reniform, in 5—7 deep lobes; lobes trifid; capsules smooth, carinated, downy, with erect appressed hairs; seeds smooth. *Br. Fl.* 1. *p.* 313. *E. Fl. v.* iii. *p.* 238. *E. Bot. t.* 385.

Waste grounds and in gravelly soils. Road side near Ovens, County of Cork; *Mr. J. Drummond.* Near Kilmakannick, County of Wicklow; *Major Percy Pratt. Fl.* June—Sept. ⊙.—*Stem* weak, prostrate. *Leaves* deeply lobed. *Flowers* very small, bluish purple.

9. G. *dissectum*, Linn. *Jagged-leaved Crane's-bill.* Peduncles two-flowered; petals notched rather shorter than the

much-awned calyx; leaves 5-parted; lobes trifid, or cut, linear; capsules smooth, hairy; seeds dotted. *Br. Fl.* 1. *p.* 313. *E. Fl. v.* iii. *p.* 241. *E. Bot. t.* 753.

Hedges and pastures, gravelly and waste places. *Fl.* May, June. ⊙.—*Stems* spreading. Distinguished by the much divided *leaves* and the short *footstalks* of the blossoms.

10. G. *columbinum*, Linn. *Long-stalked Crane's-bill.* Peduncles 2-flowered, shorter than the leaves, which are 5-parted, the lobes divided into many acute segments; petals entire, as long as the much-awned calyx; capsules smooth, glabrous; seeds dotted. *Br. Fl.* 1. *p.* 313. *E. Fl. v.* iii. *p.* 241. *E. Bot. t.* 259.

Dry pastures near Kilcrea, County of Cork; *Mr. J. Drummond. Fl.* June, July. ⊙.—*Stem* very slender, procumbent, its hairs, as in *G. dissectum*, reflexed. *Capsules* quite glabrous.

2. Erodium. *L'Herit.* Heron's-bill.

Style 1. *Calyx* of 5 sepals. *Corolla* of 5 regular petals. *Glands* 5. *Fruit* beaked, separating into 5 one-seeded *capsules*, each with a long spiral *awn*, bearded on the inside.—Name, *ερωδιος*, a *Heron*; the fruit resembling the beak of that bird. *Monadelphia. Pentandria.*

1. E. *cicutarium*, Sm. *Hemlock Heron's-bill.* Peduncles many-flowered; leaves pinnate; leaflets sessile, pinnatifid and cut; petals longer than the calyx; stems prostrate, hairy. *Br. Fl.* 1. *p.* 310. *E. Fl. v.* iii. *p.* 229. *E. Bot. t.* 1768.—*Geranium cicutarium, Linn.*

Waste and sandy grounds, frequent. *Fl.* summer months. ⊙.—Whole plant hairy. *Flowers* in small *umbels*, purplish, or sometimes white.

2. E. *moschatum*, Sm. *Musky Heron's-bill.* Peduncles many-flowered; leaves pinnate; leaflets nearly sessile, ovate, unequally cut; perfect stamens toothed at the base; stems depressed, hairy. *Br. Fl.* 1. *p.* 310. *E. Fl. v.* iii. *p.* 230. *E. Bot. t.* 902.—*Geranium moschatum, Linn.*

Sandy grounds, old walls and rocks. Simmond's-court, near Donnybrook; and rocks at Carlingford Castle. Near Monkstown Church; *Major Percy Pratt.* Plentiful near Cork. *Fl.* June, July. ⊙.

3. E. *martimum*, Sm. *Sea Heron's-bill.* Peduncles 1, or few-flowered; leaves simple ovato-cordate, stalked, lobed and crenate; stems depressed, slightly hairy. *Br. Fl.* 1. *p.* 311. *E. Fl. v.* iii. *p.* 231. *E. Bot. t.* 640.

Sandy and gravelly sea-coasts, not very common. Steep banks on the east side of the Hill of Howth, and sea cliffs on the south side of Killiney Hill. *Fl.* May—Sept. ♃.—*Flowers* exceedingly small and inconspicuous. *Petals* often wanting.

ORD. 18. OXALIDEÆ. *D C.* Wood-Sorrel Family.

Sepals 5, sometimes slightly combined, equal, persistent. Petals 5, equal, unguiculate, sometimes cohering at the base, æstivation contorted. Stamens 10, more or less monadelphous; the 5 opposite the petals longer: anthers 2-celled. Ovary with 5 angles, and 5 cells. Styles 5, filiform; stigmas somewhat capitate. Capsule membranaceous, 5-celled, 5—10-valved. Seeds few, fixed to a central axis, ovate, striated, included in a fleshy arillus, which opens with an elastic force, and ejects the seed. Albumen between cartilaginous and fleshy. Embryo with foliaceous cotyledons and a long radicle pointing to the hilum.—*Herbs or shrubs, of various parts of the world. Leaves mostly alternate, rarely opposite or whorled, compound, or, by imperfection, simple.*

1. OXALIS. *Linn.* Wood-Sorrel.

Calyx 5-parted. *Petals* 5, often united by the base of their claws. *Filaments* often combined below, 5 outer ones shorter. *Capsules* angular, 5-celled: *cells* 2, or many-seeded. *Seeds* with an elastic *arillus.*—Name from *οξυς*, *sharp* or *acid.* Our species produce in their leaves oxalic acid, in the state of binoxylate of Potash. (*Professor Thomson.*)

Decandria. Pentagynia.

1. O. *Acetosella,* Linn. *Common Wood-Sorrel.* Leaves all radicle, ternate; leaflets inversely heart-shaped, hairy; scape single-flowered; root scaly. *Br. Fl.* l. *p.* 211. *E. Fl. v.* ii. *p.* 323. *E. Bot. t.* 762.

Woods and hedge banks, also on mountains among shady rocks. A beautiful variety, with red flowers, of which I have plants in the College Botanic Garden, was found by Mr. J. Drummond near Passage, County of Cork. *Fl.* May, and much later on elevated situations. ♃.—*Leafstalks* long and slender, reddish. *Leaflets* drooping at night. *Scape* with two scaly bracteas. *Flowers* handsome, drooping, generally white, with purple veins. The *leaves* have a most agreeable acid flavour. Mr. Bicheno, in a paper published a few years ago in the First Volume of the Journal of the Royal Institution, states it to be his opinion that the wood sorrel (*Oxalis Acetosella*) was the ancient shamrock, as old authors say it was a sour indigenous plant, showing itself on St. Patrick's day, and was eaten; and, therefore, concludes, that the *Trifolium repens,* or common white clover now used, could not have been the plant in former use. The wood sorrel having trifoliate leaves as well as the white clover, would answer as well for the purpose intended.

SUBCLASS II. CALYCIFLORA. *De Cand.*

Sepals more or less combined into one piece. Petals distinct or combined, and as well as the stamens inserted upon the calyx, more or less remote from the base of the ovary. Ovary free or adnate with the calyx.

ORD. 19. PORTULACEÆ. *Juss.* Purslane Family.

Sepals 2, sometimes 3—5, cohering below. Petals variable, generally 5, sometimes cohering into a short tube, or wanting. Stamens inserted along with the petals into the base of the calyx, variable in number, all fertile; filaments distinct, often opposite to, and adnate with the petals; anthers variable, opening lengthwise. Ovary 1, 1-celled: style 1, filiform: stigmas several, much divided. Capsule 1-celled, opening transversely, or by 3 valves, occasionally 1-seeded and indehiscent. Seeds generally numerous, fixed to a central placenta. Albumen farinaceous, central. Embryo curved round the albumen: radicle elongated.—*Succulent herbs or shrubs. Leaves alternate, rarely opposite, entire, without stipules, or sometimes with membranaceous ones on each side. Flowers axillary or terminal, generally expanding only in the bright sunshine.*

1. MONTIA. *Linn.* Blinks.

Calyx of 2 sepals. *Corolla* of 5 irregular petals united at the base into one. *Capsule* 3-valved, 3-seeded.—Name, in honour of *Joseph de Monti*, a Professor of Botany and Natural History at Bologna. *Triandria. Trigynia.*

1. M. *fontana*, Linn. *Water Blinks or Water-Chickweed. Br. Fl.* 1. *p.* 58. *E. Fl. v.* 1. *p.* 187. *E. Bot. t.* 1206.

Rills, springy and wet places. *Fl.* June, July. ⊙.—Whole plant succulent, varying considerably in size. *Stem* prostrate, rooting. *Leaves* small, opposite, spathulate. *Peduncles* nearly terminal, often forked. *Flowers* white, at first drooping. *Stamens* upon the corolla, short. *Germen* and *capsule* roundish. *Seeds* three, subreniform, dotted.

ORD. 20. CRASSULACEÆ. *D C.* Houseleek Family.

Sepals 3—20, more or less combined. Petals equal to them in number, and alternate with them, and inserted into the bottom of the calyx. Stamens inserted along with the petals, either equalling them in number, and then alternate with them, or twice as many, those opposite the petals the shortest; filaments distinct, subulate; anthers oval, 2-celled, bursting longitudinally. There is a nectariferous scale at the base of each ovary. Ovaries as many as there are petals, and opposite to them, placed in a circle, distinct, 1-celled, tapering into the stigmas. Carpels several, 1-celled, opening longitudinally and internally. Seeds attached to the margin of the suture, variable in number. Albumen thin, fleshy. Embryo straight: radicle turned towards the hilum.—*Succulent herbs or shrubs. Leaves fleshy. Flowers in cymes, often unilateral.*

1. COTYLEDON. *Linn.* Pennywort.

Calyx 5-parted. *Corolla* monopetalous, tubular, 5-cleft. *Capsules* 5, each with a *gland* or nectariferous scale at its base.—Name from *κοτυλη*, a *cup*, to which the leaves of some of the species bear a distinct resemblance.

Decandria. Pentagynia.

1. C. *Umbilicus*, Huds. *Wall Pennywort.* Leaves peltate, crenate, depressed in the centre; stem with a (usually) simple raceme of pendulous flowers; upper bracteas minute, entire. *Br. Fl.* 1. *p.* 209. *E. Fl. v.* ii. *p.* 314. *E. Bot. t.* 25.—*Umbilicus pendulinus, De Cand.*

Rocks, walls, and old buildings, in rather elevated situations, Hill of Howth, Killiney Hill, &c. *Fl.* June—Aug. ♃.—Whole plant succulent. *Stems* from six inches to a foot high, rounded. *Leaves* mostly radical. *Flowers* cylindrical, yellowish-green.

2. SEDUM. *Linn.* Orpine or Stone-crop.

Calyx in 5 (sometimes 4—8) deep segments, often resembling the leaves. *Petals* 5, patent. *Germens* 5, each with a nectariferous scale at its base.—Name from *sedo*, to sit, from the humble growth of these plants on their native rocks.

Decandria. Pentagynia.

* *Leaves plane.*

1. S. *Telephium*, Linn. *Orpine, or Live-long.* Leaves oval-oblong, plane, serrated; corymbs leafy; stems erect. *Br. Fl* 1. *p.* 209. *E. Fl. v.* ii. *p.* 315. *E. Bot. t.* 1319.

Borders of fields and hedge banks near Carrigaline, County of Cork, in a naturalized state; *Mr. J. Drummond.* On an old ditch in the glebe of Oldcastle, County of Cavan; *Rev. Mr. Halpin. Fl.* July. ♃.—One to two feet high. *Stem* spotted. *Leaves* broad. *Flowers* purple. Very unlike any of the following species, and having the habit of *Rhodiola rosea.*

* * *Leaves terete. Flowers white or reddish.*

2. S. *dasyphyllum*, Linn. *Thick-leaved Stone-crop.* Leaves opposite (except on the flowering stems) ovato-globose, fleshy; panicles glutinous. *Br. Fl.* 1. *p.* 209 *E. Fl. v.* ii. *p.* 316. *E. Bot. t.* 656.

Walls at Sunday's Well, near Cork; *Mr. J. Drummond.* *Fl.* June. ♃.—*Stems* slender, procumbent below, slightly viscid. *Flowering-stems* two to three inches high. *Leaves* short, singularly thick and fleshy, glaucous, with a reddish tinge and dotted. *Flowers* tinged with rose-colour. *Petals* and *pistils* five to eight.

3. S. *anglicum*, Huds. *White English Stone-crop.* Leaves ovate, gibbous, fleshy, produced at the base, alternate; cymes few-flowered; petals very sharp at the point. *Br. Fl. p.* 209. *E. Fl. v.* ii. *p.* 317. *E. Bot. t.* 171.

Rocks, frequent; especially in dry exposed situations, as Howth, Killiney Hill, and also inland situations. *Fl.* June, July. ⊙.—Two to three inches high, much branched, procumbent below. *Leaves* glaucous-green often tinged with red. *Flowers* few in each *cyme*, but very conspicuous from their white, star-like appearance, and their purple *anthers.* It is a great ornament to the barren rocks on which it grows.

* * * *Leaves terete. Flowers yellow.*

4. S. *acre*, Linn. *Biting Stone-crop or Wall-pepper.* Leaves erect, alternate, ovate, gibbous, fleshy, produced at the base; cymes trifid, glabrous, leafy. *Br. Fl.* 1. *p.* 210 *E. Fl. v.* ii. *p.* 317. *E. Bot. t.* 389.

Walls, rocks, and sandy grounds, frequent. *Fl.* June. ♃.—Distinguished among our yellow-flowering species, by its upright, short, and very succulent *leaves*, closely imbricated on the barren shoots. Very biting when chewed; and hence its name of *wall-pepper.*

5. S. *reflexum*, Linn. *Crooked yellow Stone-crop.* Leaves awl-shaped, spurred at the base, the lowermost recurved; flowers cymose; segments of the calyx ovate. *Br. Fl.* 1. *p.* 210. *E. Fl. v.* ii. *p.* 320. *E. Bot. t.* 695.

Tops of old walls near Finglass and Chapelizod; many of the old thatched houses in the town of Antrim are covered with it. Plentiful about Carrickfergus; *Mr. F. Whitla.* On rocks by the side of the river Roe, above Newtownlimavady; *Mr. D. Moore.* On an old castle near Mallow; *Rev. Dr. Hincks.* *Fl.* July. ♃.—Sterile *branches* with thickly placed *leaves*, often reflexed. *Flowering-stems* six to eight inches high. *Cyme* large, yellow. *Flowers* numerous, often with six *petals* and twelve *stamens.* Very similar to this are the two following species.

6. S. *glaucum*, Donn. *Glaucous yellow Stone-crop.* Leaves glaucous, awl-shaped, scattered, produced at the base, those of the branches thread-shaped; flowers cymose; segments of the calyx lanceolate. *Br. Fl.* 1. *p.* 211. *E. Fl. v.* ii. *p.* 321. *E. Bot. t.* 2477.

By the side of a stream that supplies the basin at Sunday's Well, and on the top of a wall near Glaskeen, County of Cork; *Mr. J. Drummond.* *Fl.* July. ♃.—Distinguished from the last by its more glaucous hue, and more slender *leaves*, especially on the radical shoots.

7. S. *rupestre*, Linn. *Rock Stone-crop.* Leaves glaucous, spurred at the base, those of branches awl-shaped, erect, in five close rows; flowers imperfectly cymose; segments of the calyx elliptical, obtuse. *Br. Fl.* l. *p.* 211. *E. Fl. v.* ii. *p.* 321. *E. Bot. t.* 170.

Plentiful on an old wall by a footway between Dundrum and Rathfarnham; *Mr. D. Moore. Fl.* July. ♃.—Rather smaller than the last. *Leafy*, branches very numerous, erect, crowded, obtuse, thickly clothed with upright, awl-shaped, acute, very glaucous *leaves*, imbricated in five rows, spurred and unconnected at the base: those on the flowering *stems* scattered, broader and more tumid, often red. All the parts of the flowers are liable to an increase in number, even in wild specimens.

5. SEMPERVIVUM. *Linn.* Houseleek.

Calyx 12-cleft. *Petals* 12. *Capsules* 12.—Name derved from *semper*, always, and *vivo*, to live, always green.
Dodecandria. Dodecagynia.

1. S. *tectorum*, Linn. *Common Houseleek.* Leaves ciliated; offsets spreading; petals entire and hairy at the margins. *Br. Fl.* 1. *p.* 219. *E. Fl. v.* ii. *p.* 350. *E. Bot. t.* 1320.

House-tops and on walls. *Fl.* July. ♃.—The flowers of this well known plant, as Doctor Hooker observes, are no less beautiful than they are curious in their structure. "The number of their *stamens* is in reality twenty-four, of which twelve, inserted one at the base of each *petal*, are perfect; the rest alternating with the *petals*, small and abortive; some bearing *anthers*, opening longitudinally and laterally, producing, instead of pollen, *abortive ovules!* others resemble a cuneate pointed scale, in the inside of which, upon a longitudinal receptacle, are likewise ranged abortive *ovules*, in the same manner as in the real germen;—thus exhibiting the most complete transition from stamens to germens, in the same individual flower." See the plate in *Fl. Lond. ed.* 2. *Hook.*

ORD. 21. SAXIFRAGEÆ. *Juss.* Saxifrage Family.

Sepals 5, rarely 3—7, more or less cohering; the tube altogether, or in part, adnate with the ovary, or free; the limb toothed or lobed, generally persistent. Petals usually as many as there are sepals, inserted upon the tube of the calyx, alternate with its lobes, rarely none. Stamens inserted on the calyx, equal in number with the petals, and alternate with them, sometimes double, and then half opposite the petals, and half alternating with them: filaments subulate: anthers ovate 2-celled. Ovary generally of 2 carpels, rarely 3—5, united: styles equal in number with the ovaries, distinct or combined, persistent: stigma capitate or clavate. Fruit capsular, generally of 2 valves, rarely 3—5: the margins of the valves sometimes introflexed so as to be more or less 2-celled; the valves opening internally, sometimes from the base to the apex; sometimes from the apex to the base between the styles. Placentas occupying the introflexed margins of the valves more or less completely. Seeds many, minute, nearly horizontal. Albumen fleshy. Embryo small: radicle short, directed towards the hilum. Cotyledons short, ovate.—*Herbs. Leaves without stipules, alternate, rarely opposite. Flowers racemose or panicled, rarely solitary.*

1. CHRYSOSPLENIUM. *Linn.* Golden-Saxifrage.

Calyx 4—5 parted, coloured inside. *Petals* none. *Stamens* 8—10, short, perigynous. *Disk* annular. *Styles* 2, spreading. *Capsule* inferior of one cell, and two valves at the apex.—*Small succulent* herbs, *with reniform notched* leaves, *and green inconspicuous* flowers.—Name from χρυσος, *gold*, and σπλην, the *spleen*, a *disease*, for which this plant was supposed to be a cure. *Decandria Digynia.*

1. C. *alternifolium*, Linn. *Alternate-leaved Golden-Saxifrage.* Leaves alternate, lower ones subreniform upon very long footstalks. *Br. Fl.* 1. *p.* 190. *E. Fl. v.* ii. *p.* 260. *E. Bot. t.* 54.

Boggy places, among rocks and springs. Near Belfast; *Mr. Templeton. Fl.* March, April. ♃.—Four to five inches high, branched near the summit. *Leaves* petiolate, crenate. *Flowers* in small *umbels*, deep yellow, mostly with eight *stamens*.

2. C. *oppositifolium*, Linn. *Common Golden-Saxifrage.* Leaves opposite, cordato-rotundate. *Br. Fl.* 1. *p.* 190. *E. Fl. v.* ii. *p.* 260. *E. Bot. t.* 490.

Sides of rivulets, in shady places, common. *Fl.* May—July. ♃.—Generally more branched at the base than the last, of a paler colour in all its parts. *Stamens* usually eight.

[illegible] ag. Half.
[illegible]

2. ADOXA. *Linn.* Moschatell.

Calyx half inferior, 3-cleft. *Corolla* superior, 4—5 cleft. *Anthers* terminal, 1-celled. *Berry* 4—5-celled. The side flowers have the corolla 5-cleft, the terminal one 4-cleft.—Name *a*, *without*, and δοξα, *glory*; from the humble growth and insignificant aspect of this little flower. *Octandria. Tetragynia.*

1. A. *moschatellina*, Linn. *Tuberous Moschatell. Br. Fl.* 1. *p.* 184. *E. Fl. v.* ii. *p.* 242. *E. Bot. t.* 463.

Woods, hedge banks, and shady places, rare in Ireland; Cavehill and Glen of Jennymount, near Belfast; *Doctor Drummond* and *Mr. F. Whitla. Fl.* April, May. ♃.—*Stem* about a span high. *Leaves* two to three, radical, on very long *footstalks*, triternate, lobed and cut. two cauline ones small and simply ternate. *Peduncle* single, terminal, with a head of four verticillate *flowers*, and a fifth terminal one. "*Stamens* united in pairs, or they may be considered as four to five forked *stamens*, each ramification terminated by the single cell of an *anther*, and all springing from a fleshy ring that surrounds the upper part of the *germen*. The *flowers* have an evident musky smell in the evening, or early in the morning, while the dew is on them." *Hooker.*

3. PARNASSIA. *Linn.* Grass of Parnassus.

Calyx deeply 5-cleft. *Petals* 5. Nectaries 5, heart-shaped, fringed with glandular-headed filaments. *Capsule* 1-celled, 4-valved, each valve bearing a longitudinal linear receptacle with numerous *seeds*.—Named from Mount Parnassus, to which place indeed, the plant is by no means peculiar. *Pentandria. Tetragynia.*

1. P. *palustris*, Linn. *Common Grass of Parnassus.* Bristles of the nectary 9—13; leaves cordate; cauline one amplexicaul. *Br. Fl.* 1. *p.* 144. *E. Fl. v.* ii. *p.* 114. *E. Bot. t.* 82.

Boggy grounds and moist gravelly places, frequent. *Fl.* Aug.—Oct. ♃.—*Leaves* mostly radical, on long footstalks, cordate, entire, nerved; one on the stem below the middle, sessile. *Stem* angular, from four to six inches high. *Flowers* solitary, terminal, large, yellowish white, handsome. *Petals* broadly obovate. *Nectaries* each, an obcordate scale, opposite the petals, fringed with white hairs along the margin, which are terminated by a yellow pellucid globular gland.

4. SAXIFRAGA. *Linn.* Saxifrage.

Calyx superior or inferior or one-half inferior, in five segments. *Corolla* of five petals. *Caps.* with two beaks, 2-celled, many-seeded, opening between the beaks. *Seeds* upon a receptacle attached to the dissepiment.—Named from *saxum*, a *stone*, and *frango*, to *break*; in allusion to the supposed medicinal virtues of this plant; or, perhaps, to its roots penetrating the crevices of rocks and stones, among which the different species generally grow. *Decandria. Digynia.*

* *Calyx reflexed, inferior. Leaves undivided. Scape panicled, erect, much taller than the stems.*

1. S. *Geum*, Linn. *Kidney-shaped Saxifrage.* Leaves rotundato-reniform, acutely crenate, more or less hairy; footstalks linear, channelled; scape panicled; capsules superior. *Br. Fl.* 1. *p.* 191. *E. Fl. v.* ii. *p.* 261.

α. leaves hairy on both sides, their under surface beautifully reticulated with purple.

β. leaves glabrous on both sides, more sharply toothed. *S.*

Geum, E. Bot. t. 1561. *(Leaves smaller than usual). Robertsonia dentata, Haworth in App. Syn. Pl. Succ.*

γ. leaves light green, glabrous and shining, sharply toothed. *Robertsonia polita, Haworth.*

δ. leaves hairy on both sides, smaller than in any of the preceding; flowers cream-coloured, spotless; scape slender.

Sheltered spot below Turk Waterfall, Killarney, and only there. β. The most common var. Mangerton and other mountains in Kerry, Priest's Leap and other mountains near Bantry, abundant. γ. On Connor-hill, near Dingle. δ. On Connor-hill, near Dingle, with the last. *Fl.* June. ♃.

2. S. *elegans. Small round-leaved Saxifrage.* Leaves orbicular, smooth, shining; footstalks linear (flat above), hairy on the edges, about the same length as the leaves; scape panicled; capsule superior; *flowers spotted with red.—S. Geum.* δ. *Hooker, Br. Fl.* 1. *p.* 191.

Found on a rock on the summit of Turk Mountain, Killarney, in 1805. *Fl.* May, June. ♃.—Readily distinguished from every other species and variety of the group to which it belongs by its stellate form, and round, smooth, shining leaves, which have short and flattened footstalks. It is, from its low mode of growth, the best suited for edgings of any of the London Pride tribe. I have cultivated this plant since 1807, and it has always retained its original appearance. I have, therefore, for the present ventured to give it the rank of a species, until I have an opportunity of studying its characters more fully, by raising it from seed.

3. S. *hirsuta,* Linn. *Hairy Saxifrage.* Leaves oval, with sharp cartilaginous notches, slightly hairy, heart-shaped at the base; footstalks linear, channelled, much longer than the leaves; panicle somewhat forked; capsule superior. *Br. Fl.* 1. *p.* 192. *E. Fl. v.* ii. *p.* 262. *E. Bot. t.* 2322.

On fragments of rocks at the Gap of Dunloe, near Killarney, 1805. *Fl.* May—June. ♃.—Larger than *S. Geum,* to which species it is nearly allied. *Leaves* roundish, oval, always longer than they are broad, with copious, rather acute serratures, the terminal tooth broad and short; upper surface perfectly smooth, deep green, the under one purplish, slightly hairy. *Footstalks* linear throughout, channelled, very hairy, tapering from the base upwards. *Panicle* hairy and viscid, much branched, indistinctly forked, the earliest flowers from the forks. The variety mentioned by Don and Smith, with roundish heart-shaped leaves, is not of Irish growth, and is probably only a variety of *S. Geum.* I had it sent me, many years ago, from the Oxford Garden, and from the Rev. W. T. Bree. Our Irish plant exactly agrees, in every respect, with the specimens of *S. hirsuta* in the *Linnæan Herbarium.*

4. S. *umbrosa,* Linn. *London-pride Saxifrage, or None so pretty.* Leaves obovate, smooth, with sharp cartilaginous notches, tapering at the base into dilated flat footstalks; panicle rather racemose; capsule superior. *Br. Fl.* 1. *p.* 192. *E. Fl. v.* ii. *p.* 263. *E. Bot. t.* 663.

β. leaves roundish with sharp tooth-like serratures; footstalks elongated. *S. punctata. Haw. (not of Linn.)* or *Willd. (Smith.)*

γ. S. *serratifolia, Sm. Don. in Tr. of L. Soc. v.* 13. 352. Leaves oblongo-ovate, grabrous, light green with deep, acute serratures; footstalks oblong, flat. *Robertsonia serrata. Haw.*

Plentiful in the woods at Glengariff, near Bantry, and on Connor cliffs, near Dingle. β. On the bare summit of Curan-Tuhol, the highest mountain in Kerry, Mountains of Cunnamara, on Milrea and Croagh Patrick, County of Mayo. On Muckish, one of the highest mountains in Donegal; *Mr. Templeton* and !*Doctor Hooker.* γ. Gap of Dunloe, near Killarney, 1805.—The variety α. assumes a very different appearance, when growing in low sheltered situations, from the var. β. which is always found at very considerable elevations. The var. γ. is a well marked variety, and does not alter by cultivation. It is readily distinguished by its light green leaves, which are acutely serrated, and have frequently small sharp intermediate teeth between the larger serratures. *Fl.* June. ♃.

5. S. *stellaris,* Linn. *Starry Saxifrage.* Leaves elliptic, wedge-shaped, coarsely serrated, tapering and entire at the base; panicle corymbose, of few flowers; capsule superior. *Br. Fl.* 1. *p.* 192. *E. Fl. v.* ii. *p.* 265. *E. Bot. t.* 167.

Wet rocks, and by the sides of rivulets in several of the Dublin and Wicklow mountains, as well as in the southern and northern counties. *Fl.* June—Aug. ♃.—*Leaves* with coarse teeth. Whole plant slightly hairy. *Flowerstalk* two to five, or six inches high, with a minute *bractea* at each ramification of its small *panicle. Flowers* white, with two yellow spots at the base of each, somewhat clawed *petal.*

** *Calyx partly or entirely inferior. Stem leafy. Leaves undivided.*

6. S. *oppositifolia,* Linn. *Purple Mountain Saxifrage.* Leaves ovate, opposite, imbricated, ciliated; flowers solitary, terminal. *Br. Fl.* 1. *p.* 193. *E. Fl. v.* ii. *p.* 266. *E. Bot. t.* 9.

Moist alpine rocks. Mountains in Joyce-country, near Lough Corrib, 1807. Mountains of Ennishowen; *R. Brown, Esq. LL. D.* On Benyevena, County of Derry; *Mr. D. Moore. Fl.* April—June. ♃.—Grows in straggling tufts, with a habit quite different from that of any other British or Irish Saxifrage. *Flowers* large in proportion to the size of the plant, purple, very beautiful. The *leaves* are retuse, ciliated, and have a pore at the extremity. *Capsule* half inferior. One of the greatest ornaments of our rock-works in spring.

7. S. *Hirculus,* Linn. *Yellow Marsh Saxifrage.* Stem erect; leaves alternate, lanceolate; those from the root attenuated into a petiole; calyx inferior, at length reflexed, obtuse, downy at the margin. *Br. Fl.* 1. *p.* 193. *E. Fl. v.* ii. *p.* 267. *E. Bot. t.* 1000.—*Hirculus ranunculoides, Haw.*

In an extensive marsh three miles from Cloghjordan, County of Tipperary; *Mr. J. Hodgens,* nurseryman, who sent me a plant; the only place in Ireland where it has yet been found. *Fl.* Aug. ♃.—This again, like the preceding, (as Doctor Hooker remarks,) is very different from any other British species, though approaching in some particulars to the following. *Flowers* yellow, large, solitary. *Petals* almost elliptical. It is singular that this plant, which Doctor Hooker found in Iceland, should not be found in the north of Ireland, nor in Britain further north than Berwickshire.

8. S. *aizoides*, Linn. *Yellow Mountain Saxifrage.* Lower leaves of the stem numerous, crowded, the rest scattered, linear-lanceolate, fleshy, more or less ciliated; stem branched, ascending; calyx spreading; capsule half superior. *Br. Fl.* 1. *p.* 194. *E. Fl. v.* ii. *p.* 268. *E. Bot. t.* 39.—*Leiogyne aizoides, Don. Lindl. Synops.*

Cliffs on Ben Bulben, County of Sligo, and on Connor cliffs, near Dingle. *Fl.* July—Sept. ♃.—Five to seven inches high, or more, branching below. *Flowers* panicled, subcorymbose, bright yellow; each *petal* beautifully spotted with orange.

*** *Calyx spreading. Leaves more or less lobed. Flowering-stems erect, more or less leafy.*

9. S. *granulata*, Linn. *White Meadow Saxifrage.* Radical leaves reniform, on long footstalks, obtusely lobed; those of the upper part of the stem nearly sessile, acutely lobed; stem panicled; root granulated. *Br. Fl.* 1. *p.* 194. *E. Fl. v.* ii. *p.* 269. *E. Bot. t.* 500.

In meadows and pastures, on a gravelly or sandy soil. On ditch banks between Baldoyle and Portmarnock, where it was first observed by Doctor Taylor. Spring-hill, near Moneymore, County of Derry; *Mr. D. Moore. Fl.* May. ♃.—*Root* consisting of numerous, small, clustered *tubers*. *Stem* eight to twelve inches high, hollow, viscid, loosely hairy, simple and leafy below, panicled at the top. *Leaves* mostly radical, glabrous; *petioles* glandular. *Flowers* large, white. *Germen* and *capsule* half inferior. The double white Saxifrage of the gardens is a variety of this.

10. S. *tridactylites*, Linn. *Rue-leaved Saxifrage.* Glandular and viscid; leaves wedge-shaped, with three or five segments; the uppermost undivided; stem panicled, leafy; pedicels single-flowered, alternate; germen inferior. *Br. Fl.* 1. *p.* 195. *E. Fl. v.* ii. *p.* 271. *E. Bot. t.* 501.

On old walls and thatched roofs, frequent. Walls near Stillorgan, and on Feltrum-hill. On Corrigagunyel Castle, near Limerick, and on basaltic rocks, at Down hill, County of Derry; *Mr. D. Moore. Fl.* May. ⊙.—Two to four inches high. Whole plant covered with viscid hairs. *Petals* small, pure white, scarcely longer than the *segments* of the *calyx*. *Capsule* almost wholly inferior,

11. S. *cæspitosa*, Linn. *Tufted Alpine Saxifrage.* "Radical leaves crowded, 3—5-cleft, obtuse, veiny, fringed, lowermost undivided; flowers from one to five or more; germen half inferior, hairy; calyx smoother, obtuse; petals rounded, triple-

ribbed." (*Sm.*)—*Br. Fl.* 1. *p.* 195. *E. Fl. v.* ii. *p.* 273. *E. Bot. t.* 794.

Lofty mountains. On a rock near the summit of Brandon Mountain, at the Pilgrim's Well, along with *S. incurvifolia*, in 1805, and having cultivated them ever since, I can now see no difference between them, unless the more incurved leaves of the latter should constitute it a variety, the notching in the petals not being constant. The specimens which I found on the summit of Brandon had only one flower on each stem, but plants brought from thence and planted in a garden produced, in the following year, from five to nine flowers. The plant forms small dense tufts. *Radicle leaves* numerous, crowded above, fringed with soft glutinous hairs. A few of the lower ones are linear, those above divided into three or five rather broad obtuse segments, sometimes a little incurved. The *S. palmata* of *E. Bot.* now considered only a variety of this, I have not found in Ireland; the plant I found on Galtymore being *S. hirta* of *E. Bot.* which has sometimes been mistaken for it. *Fl.* May, June. ♃.

12. S. *hirta*, Smith. *Hairy Alpine Saxifrage.* Radical leaves rather crowded, 5 or 3-cleft, pointed, veiny, fringed; flowers few, corymbose; germen half inferior; calyx acute; petals obovate, triple-nerved. *E. Fl. v.* ii. *p.* 275. *E. Bot. t.* 2291.

On moist rocks near the summit of Galtymore, County of Tipperary, and on Curan Tuhol, County of Kerry. *Fl.* May, June. ♃.—Forming large tufts, and, in both the wild and cultivated state, always of a more lax mode of growth than any of the *vars.* of *S. cæspitosa.* The *shoots* and *flowerstalks* are weak and straggling, the latter generally producing only three flowers, the centre or first flower much lower than the others, which have the footstalks much lengthened. The *leaves*, which have broad footstalks, are deeply divided or fringed; the lobes three or five-cleft, the two outer ones, in the latter case, less separated, all elliptical, acute, entire, fringed like the shoots with long white hairs. The fig. in *E. Bot.* is an excellent representation of the plant.

13. S. *affinis*, Don. *Involute Alpine Saxifrage.* Radical leaves 5-cleft; those of the trailing shoots mostly 3-cleft; lobes linear, pointed, recurved; petals oblong, inflexed at the edges. *Don Tr. L. Soc. v.* 13. *p.* 418. *E. Fl. v.* ii. *p.* 275.—*S. Lævis, Mackay's Cat.*—*Donn. Cant. ed.* 5. 107.

Found on Brandon, very sparingly on the same rock with *S. cæspitosa. Fl.* May, June. ♃.—*Herb* bright green, densely tufted before flowering, afterwards throwing out many procumbent, lax, reddish, distantly leafy shoots, several inches long; the whole besprinkled with soft, slender, glutinous hairs. *Leaves* much elongated and tapering at the base, fringed, and otherwise somewhat hairy, divided about one-third their length into three lobes, the lateral lobes of the radical leaves especially cloven; all of them linear, or slightly lanceolate, acute, partly bristle-pointed. In habit resembling *S. hirta*, and like it, producing only three or four flowers on each stalk.

14. S. *hypnoides*, Linn. *Mossy Saxifrage.* Radical leaves 3 or 5-cleft, those of the procumbent shoots undivided, or 3-cleft, all bristle pointed, and more or less fringed; segments of

the calyx ovate, pointed; petals roundish or obovate, 3-ribbed with or without lateral veins. *E. Fl. v.* ii. *p.* 272.—*S. elongella, E. Bot. t.* 2277.—*S. platypetala, E. Bot. t.* 2276.

Abundant on all the limestone mountains in the County of Sligo, and on the Antrim coast. *Fl.* May, June. ♃.—Our Irish plant exactly agrees in character with that of *S. hypnoides*, so abundant on the limestone rocks near Buxton and at Dovedale, in Derbyshire, but does not correspond with the fig. and description of that species in *E. Bot.* which appears to be *S. angustifolia* of *Haw. in Miss. Nat.* In it the leaves of the trailing shoots are undivided, and is, I believe, the plant that grows on Arthur's Seat, near Edinburgh.—*Leaves* on the lower part of the procumbent shoots entire or mostly three-cleft, crowded above, where they are also deeply three-cleft; the middle segment is entire, the two lateral ones are each again divided into two, sometimes three or four less deeply parted segments; (these characters apply to its appearamce in autumn.) When I first observed this plant, on a hill near Sligo, nearly thirty years ago, in the autumn, I found late single-flowered specimens exactly corresponding with the fig. in *E. Bot.* of *S. elongella*; but plants brought from thence produced in the following year, and ever since, from three to five flowers on each stem. Plants got from Scotland about the same time for *S. elongella* are in no respect different from it.

Ord. 22. SALICARIÆ. *Juss.* Loosetrife Family.

Calyx monopetalous; the lobes with a valve or separate æstivation; their sinuses sometimes lengthened into lobes. Petals inserted between the lobes of the calyx, very deciduous. Stamens inserted into the tube of the calyx below the petals, to which they are sometimes equal in number; sometimes they are twice, or even thrice, and four times as numerous; they are seldom four; anthers innate, 2-celled, opening longitudinally. Ovarium superior, 2-or 4-celled; style filiform; stigma usually capitate. Capsule membranous, covered by the calyx, 1-celled, dehiscing either longitudinally or in an irregular manner. Seeds numerous, small, without albumen, adhering to a central placenta; embryo straight; radicle turned towards the hilum; cotyledons flat and leafy.—*Herbs, rarely shrubs. Branches frequently 4-cornered. Leaves opposite, seldom alternate, entire, without either stipulæ or glands. Flowers axillary, or in spikes or racemes.*

1. Peplis. *Linn.* Purslane.

Calyx campanulate, with six large and six alternating small teeth. *Petals* six, inserted upon the calyx, often wanting. *Capsules* superior of two cells, and many seeds.—Name from πεπλιον, anciently applied to the genus *Portulaca*, now to one somewhat similar in habit. *Hexandria. Monogynia.*

1. P. *Portula*, Linn. *Water Purslane.* Flowers axillary,

solitary; leaves obovate. *Br. Fl.* 1. *p.* 151. *E. Fl. v.* ii. *p.* 187. *E. Bot t.* 1211.

Watery places, not unfrequent. Plentiful on Howth, and about Roundwood, &c. *Fl.* July, Aug. ⊙.—*Plant* prostrate, five to six inches long, creeping, little branched. *Leaves* opposite, glabrous, tapering at the base.

2. LYTHRUM. *Linn.* Purple Loosestrife.

Calyx inferior, tubular, with 12 teeth, alternately smaller. *Petals* six, inserted upon the calyx. *Capsule* oblong, 2-celled.—Name λυθρον, *blood*, it is said from the red colour of the flowers. *Dodecandria. Digynia.*

1. L. *Salicaria*, Linn. *Spiked purple Loosestrife.* Leaves opposite, lanceolate cordate at the base; flowers in whorled leafy spikes with twelve stamens. *Br. Fl.* 1. *p.* 217. *E. Fl. v.* ii. *p.* 343 *E. Bot. t.* 1061.

Sides of watery and marshy places, frequent. *Fl.* July. ♃.—Two to three feet high, erect. *Stems* four sided. *Spikes* very long, of beautiful purple *flowers*. *Calyx* striated. *Petals* oblong, cruciform. *Stamens* within the tube of the *calyx*, six long and six short ones.

2. L. *hyssopifolium*, Linn. *Hyssop-leaved purple Loosestrife.* Leaves mostly alternate, linear-lanceolate, obtuse; flowers axillary, solitary; stamens six. *Br. Fl.* 1. *p.* 217. *E. Fl. v.* ii. *p.* 344. *E. Bot. t.* 292.

Moist and occasionally inundated places. Ballymadder, near Bannow, County of Wexford; *James Tardy, Esq.* *Fl.* Aug. ⊙.—*Stems* mostly recumbent, leafy, the central one upright, four to six inches high.

3. [illegible]

ORD. 23. RHAMNEÆ. *Br.* Buckthorn Family.

Calyx 4—5-cleft, with a valvate æstivation. Petals 4—5, (rarely wanting,) alternate with the calycine lobes, often scale-like, with a concave or cucullate limb. Stamens 4—5, opposite to the petals, consequently alternate with the calycine lobes; anthers 2-celled. Ovary sometimes wholly adnate with the calyx, sometimes adherent only with the base or as far as the middle, 2—4-celled; cells with one ovule: style 1: stigmas 2—4. Pericarp often indehiscent, a berry, drupe or samara, rarely a capsule. Seeds erect, destitute of arillus. Albumen none, or often fleshy. Embryo straight. Radicle inferior: cotyledons somewhat foliaceous.—*Shrubs or small trees. Leaves simple, alternate, rarely opposite, frequently stipuled. Flowers small, often greenish.*

1. Rhamnus, *Linn.* Buckthorn.

Calyx urceolate, 4—5-cleft. *Petals* 4—5, sometimes wanting. *Stamens* opposite the petals. *Berry* 2—4-celled, 2—4-seeded. Name *ραμνος*, in Greek, *a branch*, from its numerous branches.
Pentandria. Monogynia.

1. R. *catharticus*, Linn. *Common Buckthorn.* Spines terminal; flowers 4-cleft, diœcious; leaves ovate, sharply serrated. *Br. Fl.* 1. *p.* 104. *E. Fl. v.* i. *p.* 327. *E. Bot. t.* 1629.

Woods, hedges, and thickets. Islands in Lough Erne, near Enniskillen. On a limestone rock east side of the Lee, two miles above Cork; *Mr. J. Drummond. Fl.* May, June. ♄.—A spreading *shrub. Leaves* with four or six lateral nerves parallel with the margin or rib; *serratures* glandular. *Flowers* in dense fascicles. *Berries* black, nauseous, powerfully cathartic. They afford a *yellow* dye in an unripe state; the bark a green dye. "*Seeds* ovate, acute at the lower extremity, rounded at the back, with two flat sides, forming the internal angle. *Embryo* with kidney-shaped *cotyledons*, laterally bent, surrounded by the albumen." (*Wilson.*)

2. R. *Frangula*, Linn. *Berry-bearing Alder, or Alder Buckthorn.* Unarmed; flowers perfect; leaves obovate, entire. *Br. Fl.* 1. *p.* 104. *E. Fl. v.* i. *p.* 328. *E. Bot. t.* 250.

In a small island called the Creagh Bog in Lough Beg, County of Derry, along with the last; *Mr. D. Moore. Fl.* May. ♄.—A small *shrub. Flowers* pedunculate, axillary, somewhat fascicled, whitish-green. *Petals* very minute. *Berries* dark purple, with two *seeds*, purgative.

Ord. 24. ILICINEÆ. *Brongn. Lindl.* Holly Family. Celastrina

Sepals 4—6, imbricated in æstivation. Petals cohering at the base, hypogynous, imbricated in æstivation. Stamens alternate with the petals, inserted into the corolla; filaments erect; anthers adnate. Disk none. Ovarium fleshy, somewhat truncate, with from 2—6 cells; ovula solitary, pendulous, from a cup-shaped funiculus; stigma subsessile, lobed. Fruit fleshy, indehiscent, with from 2 to 6 stones. Seed suspended, nearly sessile; albumen large, fleshy; embryo small, 2-lobed, lying next the hilum, with minute cotyledons, and a superior radicle.—*Trees or shrubs. Leaves alternate or opposite, coriaceous. Flowers small, axillary, solitary or fascicled.*

1. Ilex. *Linn.* Holly.

Calyx 4—5 toothed. *Corolla* rotate, 4—5 cleft. *Stigmas* 4, sessile. *Berry* spherical, including four 1-seeded *nuts.* (Some flowers destitute of pistil).—Name from *ac*, *sharp*, in Celtic, according to Theis, but this is a very forced derivation.

Tetrandria. Tetragynia.

1. I. *Aquifolium*, Linn. *Common Holly*. Leaves ovate, acute, shining, waved with spinous teeth; peduncles axillary, short, many-flowered; flowers subumbellate. *Br. Fl.* 1. *p.* 72. *E. Fl. v.* 1. *p.* 227. *E. Bot. t.* 496.

Frequent in hedges and woods, especially in a light and gravelly soil. *Fl.* May, June. ♄.—A small evergreen tree of great beauty, with smooth greyish *bark*. *Leaves* alternate, deep shining green, very rigid, the upper ones often quite entire, the lower ones generally edged with long sharp spines. The flowers are somewhat umbellate, and spring from the axils of the leaves. *Calyx* slightly hairy, small. *Corolla* white. *Berries* bright scarlet, (in one variety they are yellow.) Excellent for fences, as it bears clipping. The wood is hard and white, and presents a beautiful surface; whence it is much employed in turner's work, for making drawings upon. It is also used in inlaying and veneering, and for knife handles. Bird-lime is made from its mucilaginous bark. Houses and churches are decorated at Christmas with branches containing the leaves and berries, as is also the case with the Misseltoe in the southern parts of England—a relic probably of Druidism, during the prevalence of which, according to Dr. Chandler, houses were decked with them, that the sylvan spirits might repair to them, unnipped by frost and cold winds, until a milder season had renewed the foliage of their darling abodes.—Many elegant varieties of this ornamental tree are cultivated in the gardens and plantations of the curious, of which a few may be mentioned, viz,—the plain Dutch Holly, the small myrtle leaved, the Scotch Dahoon, and the narrow-leaved or Swinard's Holly; besides many beautiful varieties with variegated leaves, several of which were first found in a wild state by Mr. R. Hodgens, Nurseryman, Dunganstown, County of Wicklow.

ORD. 25. CELASTRINEÆ. *Br.* Celastrus Family.

Sepals 4—5, combined at the base, distinct from the ovary, with an imbricated æstivation. Petals 4—5, alternate with the sepals, rarely none. Stamens 4—5, alternate with the petals, with a doubtfully perigynous insertion; anthers 2-celled. Ovary free, surrounded by a somewhat fleshy disk, 2—3—4-celled; cells 1—or many-seeded: ovules erect, rarely pendulous: style 1 or wanting: stigma 2—4-cleft. Pericarp a capsule, berry, drupe or samara, various in form, often deformed by the suppression of some of the cells. Seeds generally, especially in the capsular fruits, arillate. Albumen none, or fleshy. Embryo straight.—*Shrubs or trees. Leaves usually simple, often stipuled, alternate or opposite. Flowers white or greenish.*

1. EUONYMUS. *Linn.* Spindle-tree.

Calyx flat, 4—5-cleft, having a peltate disk within. *Petals* 4—5. *amens* alternating with the petals, inserted upon glands at the margin of the disk. *Capsules* with 3—5 angles, and as many cells and valves. *Seeds* with a coloured fleshy *arillus.*—Named from *Euonyme*, Mother to the Furies, in allusion to the injurious effects of the fruit produced by this plant.

Pentandria. Monogynia.

1. E. *europæus*, Linn. *Common Spindle-tree.* Flowers mostly tetrandrous; petals acute; branches glabrous; leaves ovato-lanceolate, minutely serrated. *Br. Fl.* 1. *p.* 104. *E. Fl. v.* i. *p.* 329. *E. Bot. t.* 362.

Abundant on limestone rocks near Galway, and at the Dargle, &c. On inaccessible cliffs on Cave-hill, near Belfast; *Mr. F. Whitla. Fl.* May. ♄.—*Shrub* three to five feet high. *Bark* green, smooth. *Leaves* glabrous. *Peduncle* bearing a few-flowered *umbel. Flowers* small, white. *Fruit* obtusely angular, very beautiful, rose-coloured. *Arillus* orange-coloured. The *berries* and even *leaves* are said to be dangerous, and the whole plant is fetid. Of the tough white wood skewers and spindles are made, and Linnæus tells us it affords the best charcoal for drawing.

ORD. 26. LEGUMINOSÆ. *Juss.* Pea Family.

Calyx 5-parted, toothed or cleft, free, with the odd segment anterior, the segments often unequal and variously combined. Petals 5, or, by imperfection, 4, 3, 2, 1, or none, inserted into the base of the calyx, either papilionaceous or regularly spreading, the odd petal posterior. Stamens definite or indefinite, perigynous, either distinct or monadelphous or diadelphous, very seldom triadelphous; anthers versatile. Ovary simple, superior, 1-celled, 1—or many-seeded; style simple, proceeding from the upper margin of the ovary; stigma simple. Fruit either a legume or a drupe. Seeds attached to the upper suture, solitary or several, occasionally with an arillus; embryo generally destitute of albumen, straight or with the radicle bent upon the cotyledons; cotyledons either remaining under ground in germination, or elevated above the ground and becoming green, like leaves.—*Shrubs, trees, or herbaceous plants. Leaves compound, with stipulæ at the base of the petiole and of each leaflet. Petiole usually tumid at the base. Flowers axillary, either solitary, or in racemes or panicles.*

One of the most extensive, and at the same time the most important, on account of its useful products, of all the Natural Orders. Many of them yield food for man; others for cattle.

§ *Loteæ.* De Cand.

Corolla papilionaceous. Stamens either monadelphous or diadelphous. Pod continuous, 1-celled, or occasionally 2-celled, in consequence of the bending inwards of one of the sutures.

Cotyledons in germination, rising above the ground, and acquiring a green colour.

1. Ulex. *Linn.* Furze.

Calyx of 2 sepals, with a small scale or bracteæ on each side at the base. *Legume* turgid, scarcely longer than the Calyx.—Name; according to Theis its root is *ec* or *ac*, a *sharp point*, in Celtic: whence too arises the French name *ajonc* or *acjonc*, a *sharp* or *spiny rush*. *Diadelphia. Decandria.*

1. U. *europæus*, Linn. *Common Furze, Whin or Gorse.* Calycine teeth obsolete, connivent; bracteas ovate, lax; branchlets erect. *Br. Fl.* 1. *p.* 318. *E. Fl. v.* iii. *p.* 265. *E. Bot. t.* 742.

Heathy places, especially in sandy or gravelly soils. *Fl.* April, May. ♄.—*Shrub* three to four or more feet high, with innumerable green striated *branches*, clothed with acute branching *spines*, having a few *leaves* at their base, which are lanceolate, a little hairy, very minute. *Calyx* pubescent. *Corolla* bright yellow.—The *Ulex strictus* of *Mackay's Cat.* of *Irish plants*, now well known in collections as the Irish furze, appears to be a variety of *U. europæus*. It is readily distinguished by its compact and upright mode of growth and soft texture, but it rarely produces flowers. It is readily propagated by cuttings, and makes a neat close hedge, where shelter only is required. It was first observed to grow sparingly in the Marquis of Londonderry's park, County of Down, above thirty years ago, by Mr. John White.

2. U. *nanus*, Forst. *Dwarf Furze.* Teeth of the calyx lanceolate, spreading; bracteas minute, close pressed; branches reclining. *Br. Fl.* 1. *p.* 318. *E. Fl. v.* iii. *p.* 265. *E. Bot. t.* 742.

Dry heaths and hilly places, frequent. *Fl.* in autumn. ♄.—Smaller than the last in all its parts. The essential character, according to Sir James E. Smith, consists in the more distinct and spreading *calyx-leaves*, and the more minute, rounded, close pressed, and often hardly discernible bracteas.

2. Genista. *Linn.* Green-weed.

Calyx 2-lipped, upper lip with two deep segments, lower one with three teeth. *Standard* oblong. *Legume* flat or turgid, many-seeded.—Name; from *Gen*, a *shrub*, in Celtic. *Diadelphia. Decandria.*

1. G. *tinctoria*, Linn. *Dyer's Green-weed.* Unarmed, erect; leaves lanceolate, nearly glabrous; branches rounded, striated; flowers spicato-racemose; legumes glabrous. *Br. Fl.* 1. *p.* 319. *E. Fl. v.* iii. *p.* 263. *E. Bot. t.* 44.

Thickets and borders of fields. Between Killiney Hill and Bray; *Doctor Allman;* where I have since observed it. *Fl.* July, Aug. ♄.—One to two feet high. *Leaves* rather distant. *Flowers* on short axillary stalks, crowded about the summits of the branches. The whole plant affords the dyer a good yellow colour, and with woad a good green. (*Smith.*) Ray says the milk of cows feeding upon it is rendered bitter, which flavour is communicated to butter and cheese.

3. CYTISUS. *Linn.* Cytisus or Broom.

Calyx 2-lipped; the upper lip nearly entire, or with two small teeth, lower one 3-toothed. *Standard* large, broadly ovate. *Keel* very blunt, including the stamens. *Legume* flattened, many-seeded.—Name; κυτισος, of the ancient Greeks; said to be so called because it came from the island *Cythnos*, one of the Cyclades. *Diadelphia. Decandria.*

1. C. *scoparius*, De Cand. *Common Broom.* Branches angled, glabrous; leaves ternate, stalked, upper ones simple; leaflets oblong; flowers axillary, shortly pedicellate; legumes hairy at the margin. *Spartium scoparium, Linn.*—*Br. Fl.* 1. *p.* 319. *E. Fl. v.* iii. *p.* 261. *E. Bot. t.* 1339.

Dry hills and gravelly places, frequent. *Fl.* June. ♄.—Three to six feet or more high. *Branches* long, straight, green. *Flowers* large, bright yellow; *keel* broad. *Standard* and *wings* much spreading. *Legumes* large, compressed, dark brown. The young green tops are said to be powerfully purgative and diuretic; and are very bitter; is a rustic remedy for dropsies, which regular practitioners have not altogether despised.

4. ANTHYLLIS. *Linn.* Kidney-vetch.

Calyx inflated, 5-toothed. *Petals* nearly equal in length. *Legume* oval, 1—3-seeded, enclosed in the permanent calyx.—Name; ανθος, a *flower*, and ιουλος, a *beard* or *down*, from the downy calyces. *Diadelphia. Decandria.*

1. A. *vulneraria*, Linn. *Common Kidney-vetch or Lady's finger.* Herbaceous; leaves pinnated, unequal; heads of flowers in pairs. *Br. Fl.* 1. *p.* 320. *E. Fl. v.* iii. *p.* 269. *E. Bot. t.* 104.

Dry gravelly banks and pastures, frequent. With red and sometimes white flowers by the sea side at Ballylickey, near Bantry, where I gathered it in 1805. *Fl.* June—Aug. ♃.—*Stem* ascending. *Leaflets* five to nine, lanceolate, entire, hairy, terminal one the largest. *Flowers* in crowded *heads*, mostly yellow, with hairy *calyces*, and digitate or palmate large *bracteas*.

5. ONONIS. *Linn.* Rest-harrow.

Calyx 5-cleft, its segments linear. *Standard* large, striated. *Legume* turgid, sessile, few-seeded.—Name; ονος, an *ass*, because the plant is eaten by that animal.

Diadelphia. Decandria.

1. O. *arvensis*, Linn. *Common Rest-harrow.* Stem hairy; branches at length spinous; flowers mostly solitary; leaves ternate below, the rest simple, serrated, entire at the base. *Br. Fl.* 1. *p.* 320. *E. Fl. v.* iii. *p.* 267. *E. Bot. t.* 682.

Barren pastures, borders of fields, and by the sea-side. *Fl.* June—Aug. ♃.—A very variable plant, erect, or procumbent and rooting, more or less spinous. *Leaves* ovate or cuneate. *Flowers* rather large, rose-coloured, sometimes white. Smith enumerates three *vars.* and De Candolle makes of them two species, *O. procurrens* and *O. spinosa.*

6. ASTRAGALUS. *Linn.* Milk-vetch.

Keel of the *corolla* obtuse. *Legume* 2-celled (more or less perfectly); *cells* formed by the inflexed margins of the lower suture.—Named from αστραγαλος, the *vertebra*, in allusion to the knotted root of that individual plant to which it was formerly applied. *Diadelphia. Decandria.*

1. A. *hypoglottis*, Linn. *Purple Mountain Milk-vetch.* Stem prostrate; leaflets slightly emarginate; legumes erect, capitate, hairy; their cells 1-seeded. *Br. Fl.* 1. *p.* 325. *E. Fl. v.* iii. *p.* 294. *E. Bot. t.* 274.

On the largest of the south islands of Arran; *Messrs. R. Ball* and *Wm. Thompson*, in 1804, the only place in Ireland where it has been found. *Fl.* July. ♃.—*Stem* weak, a few inches in length. *Leaflets* elliptic-ovate, retuse, hairy. *Peduncles* longer than the leaves, curved upwards. *Heads of flowers* large in proportion to the plant, bluish-purple. *Legumes* ovate, acuminate, hairy.

7. MELILOTUS. *Tourn.* Melilot.

Legume one or few-seeded, indehiscent, longer than the calyx. *Petals* distinct; deciduous. *Flowers* racemose. *Leaves* ternate.—Name; *mel*, *honey*, and *Lotus*, the Genus so called. *Diadelphia. Decandria.*

1. M. *officinalis*, Linn. *Common Yellow Melilot.* Legumes 2-seeded, ovate, wrinkled; racemes lax; corolla twice as long as the calyx, petals nearly equal in length; stem erect.—*Trifolium Melilotus*, *Linn.*—*Br. Fl.* 1. *p.* 327. *E. Fl. v.* iii. *p.* 297. *E. Bot. t.* 1340.

Bushy places and salt marshes near Baldoyle, abundant. *Fl.* June, July. ♃.

2. M. *leucantha*, Koch. *White-flowered Melilot.* Legumes 2-seeded, ovate, wrinkled; racemes lax; corolla twice as long as the calyx; keel and wings shorter than the standard; stem erect. *De Cand. Prod. v.* ii. *p.* 187.—*Trifolium officinale*, *β. Linn.*—*Br. Fl.* 1. *p.* 327.

Salt marshes near Cork; *Mr. J. Drummond. Fl.* July—Aug. ♃.

8. TRIFOLIUM. *Linn.* Trefoil and Clover.

Legume one or more seeded, indehiscent, shorter than the calyx by which it is enclosed, (except in *T. ornithopodioides*). *Petals* mostly combined by their claws, and persistent.—*Flowers* capitate. *Leaves* ternate.—Name, so called on account of its three leaves or leaflets. *Diadelphia. Decandria.*

* *Legumes with several seeds.*

1. T. *ornithopodioides*, Linn. *Bird's-foot Trefoil.* Stem prostrate; leaflets obcordate, denticulate; stipules lanceolate, entire, rather membranous, very acute; flowers from two to four in number; legumes rather falcate, compressed, twice as long as the calyx. *Br. Fl.* 1. *p.* 327. *E. Fl. v.* iii. *p.* 298. *E. Bot. t.* 1047.—*Trigonella ornithopodioides, De Cand. Lindl.*

Sandy pastures near the sea. On the south side of Killiney Hill, and on the gravelly beach by the Murrow of Wicklow. *Fl.* June. ⊙.—*Stems* spreading, from three to five inches in length. *Flowers* small. As Doctor Hooker observes, the long *legumes, petals,* and the habit of this plant does not accord with this genus, nor yet with *Trigonella.*

2. T. *repens*, Linn. *Dutch Clover.* Heads globose; flowers somewhat stalked; legume within the calyx, 4-seeded; stems creeping. *Br. Fl.* 1. *p.* 328. *E. Fl. v.* iii. *p.* 299. *E. Bot. t.* 1769.

Meadows and pastures, frequent. *Fl.* summer months. ♃.—Heads of *flowers* white. Each flower is on a footstalk, which becomes recurved after flowering, and then all the *legumes* are drooping and covered with the brown *corolla.* This is the Dutch *clover* of agriculturists, and is deservedly in great repute for pastures. It is the plant which I have observed, for the last thirty years, to be worn as the shamrock on Patrick's day. The *leaflets* have often a dark spot at their base, with a white line bordering it near the middle. A variety is frequently cultivated in gardens having four or five leaflets, of a dark brown colour, on each common footstalk, instead of three, the usual number.

* * *Legumes one or two-seeded. Standard deciduous or unaltered. Calyx not inflated, mostly hairy.*

3. T. *pratense*, Linn. *Common purple Trefoil, or Red Clover.* Heads dense, ovate; teeth of the calyx setaceous, lower one longer than the rest, half as long as the tube of the corolla; stipules ovate, bristle-pointed; leaflets oval or obcordate; stems ascending. *Br. Fl.* 1. *p.* 328. *E. Fl. v.* iii. *p.* 302. *E. Bot. t.* 1770.

Meadows and pastures, frequent. *Fl.* summer months. ♃.—*Flowers* reddish-purple. This is the common *Red Clover* so much cultivated. The *leaflets* are oval, obovate, or obcordate, often marked with a white lunulate spot.

4. T. *medium*, Linn. *Zigzag Trefoil.* Spikes lax; stems zigzag and branching; petals nearly equal; stipules tapering, converging; two upper calyx teeth rather the shortest. *Br. Fl.* 1. *p.* 329. *E. Fl. v.* iii. *p.* 302. *E. Bot. t.* 190.

In dry elevated pastures and ditch banks, in a gravelly soil with a clay bottom. Frequent in Antrim; *Mr. Templeton.* On elevated ground between Larne and Glenarm. Between Dunmanway and Bandon; *Mr. J. Drummond.* The plant that has been mistaken for this growing near Dundrum, appears to be only a variety of *T. pratense.* *Fl.* July. ♃.—*Stem* remarkably zigzag. Heads of *flowers* larger than the last, deeper purple. *Leaves* spotless. Inferior in point of quality to *T. pratense,* but better fitted to pasture on light soils.

5. T. *maritimum*, Huds. *Teasel-headed Trefoil.* Spikes ovate, somewhat hairy; stipules lanceolate, erect; calyx teeth after flowering dilated, leafy, and spreading; leaflets obovato-oblong. *Br. Fl.* 1. *p.* 329. *E. Fl. v.* iii. *p.* 303. *E. Bot. t.* 220.

Dry sandy fields and ditch banks on the coast near Kilbarrick Church, between Dublin and Howth, rather sparingly, it is also said to have been found in salt marshes on the island of Lambay. *Fl.* June, July. ⊙.—Three to six inches high. *Stems* spreading or decumbent, branched. *Leaflets* dark green, rather narrow. *Flowers* pale purple.

6. T. *arvense*, Linn. *Hare's-foot Trefoil.* Spikes cylindrical, very hairy; stipules lanceolate, bristle pointed; calyx teeth longer than the corolla, permanently bristle-shaped; leaflets linear-obovate. *Br. Fl.* 1. *p.* 329. *E. Fl. v.* iii. *p.* 305. *E. Bot. t.* 944.

Sandy fields, generally near the sea; abundant near Baldoyle and Portmarnock, near Cork, and also on the northern coast. *Fl.* July, Aug. ⊙.—*Plant* pale green. *Stem* erect, branched, very hairy. *Petioles* shorter than the *leaves.* *Flowers* pale pink or white, almost concealed by the very hairy *calyx.*

7. T. *scabrum*, Linn. *Rough rigid Trefoil.* Heads sessile, axillary, ovate; calyx teeth unequal, lanceolate, rigid; finally recurved; stems procumbent. *Br. Fl.* 1. *p.* 330. *E. Fl. v.* iii. *p.* 396. *E. Bot. t.* 903.

Gravelly or dry sandy fields. Field near Sandymount and at Kilbarrick Church. *Fl.* May, June. ⊙.—A small spreading *plant,* with many terminal and axillary, sessile, ovate *heads,* very rigid in fruit. *Flowers* white, very small.

8. T. *striatum*, Linn. *Soft-knotted Trefoil.* Heads sessile, axillary and terminal, ovate; calyx elliptical, furrowed, hairy; with straight bristle-shaped teeth; stems procumbent. *Br. Fl.* 1. *p.* 330. *E. Fl. v.* iii. *p.* 307. *E. Bot. t.* 1843.

Dry fields. Gravelly bank at the Ram bog on the shore about a a quarter of a mile above Carrickfergus; *Mr. Templeton,* in June, 1811. *Fl.* June. ⊙.—From four to ten inches long, more or less procumbent or reclined, pubescent. *Flowers* small, purplish red. *Calyx* deeply furrowed, oval, a little swollen, with five, almost setaceous, straight, not recurved teeth.

* * * *Calyx of the fruit inflated, bladdery.*

9. T. *fragiferum*, Linn. *Strawberry-headed Trefoil.* Heads roundish; calyx finally inflated, deflexed, with two terminal teeth; stems creeping. *Br. Fl.* 1. *p.* 330. *E. Fl. v.* iii. *p.* 308. *E. Bot. t.* 1050.

Moist meadows, not unfrequent, in a black boggy soil. Plentiful near the lake at Sandymount, and in a salt marsh at Portmarnock. *Fl.* July, Aug. ♃.—*Flowers* very small, purplish red. The heads of *flowers*, an inch in diameter, are often more or less coloured, so as not unaptly to represent a strawberry. Mouth of the *calyx*, singularly contracted when enclosing the fruit.

* * * * *Standards deflexed, dry and membranous.*

10. T. *procumbens*, Linn. *Hop Trefoil.* Heads oval, many-flowered; standard finally deflexed, furrowed; stems spreading or procumbent; common footstalk longest at the base. *Br. Fl.* 1. *p.* 331. *E. Fl. v.* iii *p.* 309. *E. Bot. t.* 945.

Dry pastures, frequent. Plentiful near Kingstown. *Fl.* June, July. ⊙.—*Stems* four to twelve inches long, spreading, hairy. *Leaflets* obovate, toothed. *Heads* axillary, small. *Flowers* yellow, about fifty in each head.

11. T. *minus*, Relhan. *Lesser yellow Trefoil.* Heads hemispherical; flowerstalks straight, rigid; standard nearly even; stems prostrate. *E. Fl. v.* iii. *p.* 310. *E. Bot. t.* 1256. *T. filiforme a. major, Hooker in Br. Fl.* 1. *p.* 331.

Gravelly fields, frequent. *Fl.* June, July. ⊙.—*Stem* usually from three to nine inches long, but in one variety often extending to two feet. *Leaflets* inversely heart-shaped. *Flowers* yellow, from twelve to fifteen, in each hemispherical little head.

12. T. *filiforme*, Linn. *Slender yellow Trefoil.* Clusters lax, of few flowers; common-stalks capillary, wavy; standard even; stems prostrate; leaflets all nearly sessile. *E. Fl. v.*iii. *p.* 310. *E. Bot. t.* 1256.—*T. filiforme, β. microphyllum, Hook. in Br. Fl.* 1. *p.* 331.

In sandy or gravelly pastures, whether dry, or moist. *Fl.* June, July. ⊙.—From three to eight inches high. *Leaflets* inversely heart-shaped, or obovate, toothed. *Flowers* yellow.

9. LOTUS. *Linn.* Bird's-foot Trefoil.

Calyx tubular, 5-cleft. *Wings* about as long as the vexillum. *Keel* beaked. *Pod* cylindrical or compressed, apterous. *Style* straight, subulate.—*Herbaceous*, or rarely *shrubby plants*. *Leaves* ternate. *Stipules* leafy. *Peduncles* axillary, from one to six-flowered, supported by a floral leaf. *Flowers* yellow, rarely white or pink.—Name; supposed to be one of the three kinds (the *herbaceous*) of the Λωτος of the Greeks.

Diadelphia. Decandria.

1. L. *corniculatus*, Linn. *Common Bird's-foot Trefoil.* Heads depressed, umbellate, 8—10 flowered; stems decumbent; leaflets obovate; peduncles very long; claw of the standard inflated above.

a. vulgaris; every where glabrous or nearly so. *L. corniculatus, Linn. Br. Fl.* 1. *p.* 332. *E. Fl. v.* iii. *p.* 312. *E. Bot. t.* 2090.

β. villosus; stem, leaves, and calyx clothed with very long spreading hairs.

Sandy fields, common. *β.* moist bushy places at Dunran, County of Wicklow. *Fl.* July, Aug. ♃.

2. L. *major*, Scop. *Greater Bird's-foot Trefoil.* Heads depressed, umbellate, 8—10 flowered; stems nearly erect, tubular; leaflets obovate; peduncles very long; claw of the standard narrow. *Br. Fl.* 1. *p.* 332. *E. Fl. v.* iii. *p.* 313. *E. Bot. t.* 2091.

Sides of ditches and moist bushy places, not uncommon; plentiful at Dunran, County of Wicklow. County of Derry; *Mr. D. Moore. Fl.* July, Aug. ♃.

3. L. *angustissimus*, Linn. *Slender Bird's-foot Trefoil.* Villous. Flowers solitary or in pairs; their peduncles about twice as long as the leaves; leaflets ovato-lanceolate; calyx-teeth very long; stems procumbent; legumes very slender. *Br. Fl.* 1. *p.* 332. *E. Fl. v.* iii. *p.* 315.—*L. diffusus, E. Bot. t.* 925.

In meadows towards the sea, rare. Strand near Passage, County of Cork; *Mr. J. Drummond. Fl.* May, June. ⊙.—*Flowers* much smaller, and general aspect very different from any of the preceding.

10. MEDICAGO. *Linn.* Medick.

Calyx somewhat cylindrical, 5-cleft. *Keel* rather distant from the vexillum. *Stamens* diadelphous. *Pod* many-seeded, variable in form, always falcate or spirally twisted.—*Herbaceous plants or shrubs. Stipulæ* usually cut. *Leaves* stalked, trifoliate; *leaflets* toothed. *Peduncles* axillary, with 1, 2, or many flowers. *Flowers* yellow or purple.—Name; the μηδικη of the Greeks, so called, because it was introduced into Greece by the Medes. *Diadelphia. Decandria.*

1. M. *sativa*, Linn. *Purple Medick or Lucerne.* Clusters upright; legumes spiral; stem erect, smooth. *Br. Fl.* 1. *p.* 333. *E. Fl. v.* iii. *p.* 317. *E. Bot. t.* 1749.

Dry gravelly banks and pastures, naturalized. *Fl.* June, July. ♃.—Plentiful at Portmarnock in sandy fields. This has purple *flowers* and a spirally twisted *pod.*

2. M. *falcata*, Linn. *Yellow Sickle Medick.* Clusters upright; legumes sickle-shaped; stem procumbent. *Br. Fl.* 1. *p.* 333. *E. Fl. v.* iii. 317. *E. Bot. t.* 1016.

Pastures and borders of fields, but scarcely indigenous. Along with the last at Portmarnock. *Fl.* June, July. ♃.—*Flowers* yellow.

3. M. *lupulina*, Linn. *Black Medick or Nonsuch.* Spike ovate, erect; legumes kidney-shaped, ragged and veiny, single-seeded; stem procumbent. *Br. Fl.* 1. *p.* 333. *E. Fl. v.* iii. *p.* 318. *E. Bot. t.* 971.

Abundant in waste grounds and cultivated fields. *Fl.* May—Aug. ⊙.—Much esteemed by the farmer, by whom it is known as the yellow trefoil. Very similar in habit to *Trifolium filiforme*. *Flowers* crowded, small, yellow. *Legumes* small, rugged, of a black colour when ripe.

§ *Vicieæ.* *De Cand.*

Corolla papilionaceous. Stamens always diadelphous. Pod continuous, 1-celled. Cotyledons thick, farinaceous, in germination remaining under ground, and never acquiring a green colour.

11. ERVUM. *Linn.* Tare.

Calyx 5-cleft, with linear acute segments as long as the corolla. *Style* smooth. *Pod* oblong, 2 or 4-seeded. *De Cand.*—Name derived according to Theis from the Celtic *erw, a ploughed field*, of which it is the pest. *Diadelphia. Decandria.*

1. E. *tetraspermum*, Linn. *Smooth Tare.* Flowers mostly in pairs; legume smooth, with four seeds; leaflets oblong, bluntish. *Br. Fl.* 1. *p.* 324. *E. Fl. v.* iii. *p.* 288. *E. Bot. t.* 1223.

Fields and hedges, (rare in Ireland). Weir over Blackwater, near Lasaton bridge; *Doctor Osborne. Fl.* June, July. ⊙.—*Herb* besprinkled with fine soft hairs, especially the *flowerstalks* and *calyx*. *Stem* weak, branched from the bottom, leafy, two or three feet high, climbing. *Flowers* usually two on each stalk, rarely three or four, often solitary, drooping, small, grey, streaked with blue.

2. E. *hirsutum*, Linn. *Hairy Tare.* Clusters many-flowered; legumes hairy, with two seeds; leaflets abrupt. *Br. Fl.* 1. *p.* 324. *E. Fl. v.* iii. *p.* 289. *E. Bot. t.* 971.

Corn fields and hedges, frequent. *Fl.* June. ⊙.—*Stem* two to three feet long, weak, straggling and climbing. *Leaflets* numerous. *Flowers* very insignificant, purplish blue.

12. PISUM. *Linn.* Pea.

Calyx with foliaceous segments, the two upper shortest. *Vexillum* large, reflexed. *Style* compressed, keeled, villous on the

upper side. *Pod* oblong, compressed, not winged, many-seeded. *Seeds* roundish, with a roundish hilum.—*Annuals or Perennials. Leaves* abruptly pinnate, with a tendril in place of a terminal leaflet. *Stipules* large. *De Cand.*—Name; in Celtic *pis; pisen* plural: in Greek *πισον*, meaning *a pea.*
Diadelphia. Decandria.

1. P. *maritimum*, *Sea Pea.* Footstalks flattish on the upper side; stem angular; stipules arrow-shaped; stalks many-flowered. *Br. Fl.* 1. *p.* 324. *E. Fl. v.* iii. *p.* 270. *E. Bot. t.* 1046.

Rare in Ireland. Sand hills, bay of Castlemain, County of Kerry. *Fl.* July. ♃.—*Stems* a span or more in length, simple, procumbent, glaucous. *Flowers* purple, veined with crimson, in axillary, stalked clusters. This has more the habit of a *Lathyrus* than of a *Pisum*, though the *style* most resembles the latter.

13. Vicia. *Linn.* Vetch.

Calyx tubular, 5-cleft or 5-toothed, the two upper teeth shorter than the others. *Stamens* diadelphous. *Style* filiform at nearly right angles with the ovarium, villous on the upper side, and below the apex on the under. *Pod* oblong, 1-celled, many-seeded. *Seeds* with an oval or linear lateral hilum.—*Climbing herbaceous plants.* Leaves *abruptly pinnate, with a* tendril *in place of an odd leaflet.* Stipulæ *generally saggitate.* Peduncles *axillary, either long and many-flowered, or short and 1-flowered. De Cand.*—Name; originally derived, according to Theis, from *Gwig*, Celtic; *Wicken* in German; *βικιον* in Greek; *Vesce*, in French; in English, *Vetch.*
Diadelphia. Decandria.

* *Stalks elongated, many-flowered.*

1. V. *sylvatica*, Linn. *Wood Vetch.* Stalks many-flowered; leaflets elliptical; stipules crescent-shaped, deeply toothed. *Br. Fl.* 1. *p.* 322. *E. Fl. v.* iii. *p.* 279. *E. Bot. t.* 79.

Bushy places, chiefly in mountainous countries. Gap of Ballinascorney, Devil's Glen, Glengariff, and about Bantry Bay; Mucruss, Killarney, and Rostrevor woods. Magilligan, County of Derry; *Mr. D. Moore. Fl.* July, Aug. ♃.—*Stems* three to six feet high, climbing by means of its branching tendrils. *Leaflets* six to eight or ten pairs. *Flowers* very beautiful, numerous, white, streaked with bluish veins. One of our most elegant wild climbing plants, well worthy of cultivation.

2. V. *Cracca*, Linn. *Tufted Vetch.* Stalks many-flowered; leaflets lanceolate, downy; stipules half arrow-shaped, mostly entire. *Br. Fl.* 1. *p.* 322. *E. Fl. v.* iii. *p.* 280. *E. Bot. t.* 1168.

Bushy places, frequent. *Fl.* July, Aug. ♃.—Two or three feet high, climbing. *Flowers* numerous, crowded, drooping, and imbricated, of a fine bluish purple.

* * *Flowers axillary, nearly sessile.*

3. V. *sativa*, Linn. *Common Vetch.* Flowers nearly sessile, mostly in pairs; leaflets elliptic-oblong, lower ones abrupt; stipules with a blackish depression beneath; seeds orbicular, smooth. *Br. Fl.* 1. *p.* 323. *E. Fl. v.* iii. *p.* 281. *E. Bot. t.* 334.

Cultivated grounds and corn fields, frequent. *Fl.* June. ⊙.—One foot or more high. *Leaflets* variable in height and in number, from two to six pairs or more on a petiole. *Flowers* large, purple, and blue or red. *Legumes* more or less downy, erect. A valuable plant as early fodder for horses and other cattle, and will bear cutting three or four times throughout the season, if judiciously managed.

4. V. *angustifolia*, Sibth. *Narrow-leaved crimson Vetch.* Flowers mostly solitary, nearly sessile; leaflets linear, lowermost ones inversely heart-shaped; stipules toothed, with a pale depression beneath; seeds smooth. *Br. Fl.* 1. *p.* 323. *E. Fl. v.* iii. *p.* 282. *Hook. in E. Bot. Suppl. t.* 2614.

Sandy coast of Magilligan; *Mr. D. Moore*. *Fl.* June. ⊙.—Nearly allied to the last species.

5. V. *lathyroides*, Linn. *Spring Vetch.* Flowers solitary, nearly sessile; leaflets elliptic-oblong; lower ones inversely heart-shaped; tendrils simple, shorter than the leaflets; seeds cubic, warty. *Br. Fl.* 1. *p.* 323. *E. Fl. v.* iii. *p.* 283. *E. Bot. t.* 30.

Sandy fields between Clontarf and Baldoyle, and in old gravel pits in the Phœnix Park, and many other places, not uncommon. *Fl.* April, May. ⊙.—*Root* fibrous, beset with minute fleshy tubercles. *Stems* several, procumbent in opposite directions, branched at the bottom only, three or four inches long, angular, leafy, finely downy like the rest of the herbage. *Footstalks* channelled, each ending in a very short simple tendril or none at all.

6. V. *sepium*, Linn. *Bush Vetch.* Flowers about four together, in short axillary clusters; legumes upright, smooth; leaflets ovate, obtuse; the upper ones gradually smaller. *Br. Fl.* 1. *p.* 324. *E. Fl. v.* iii. *p.* 286. *E. Bot. t.* 79.

Woods and shady places, frequent. *Fl.* May, June. ♃.—*Stems* about two feet high, angular, smooth, but little branched, supported upon other plants by the branching *tendrils* of the *leaves*. *Leaflets* numerous, ovate, obtuse, thin, hairy, gradually smaller towards the end of each stalk. *Stipulæ* more or less ternate and toothed. *Corolla* variegated with blue, purple, and greenish white, rarely pure white.

14. LATHYRUS. *Linn.* Vetchling and Everlasting Pea.

Calyx campanulate, 5-cleft, the upper lobes the shortest. *Stamens* diadelphous. *Style* flat, dilated at the end, villous or pubescent in front. *Pod* oblong, many-seeded, 2-valved, 1-celled. *Seeds* round or angular.—*Climbing* herbaceous *plants.* Stipules *half saggitate.* Leaves *abruptly pinnate, of from one to three pairs, with a tendril in the place of the terminal leaflet.* Peduncles *axillary. De Cand.*—Name λαθυρος, a Leguminose plant of Theophrastus. *Diadelphia. Decandria.*

1. L. *pratensis*, Linn. *Meadow Vetchling.* Stalks many-flowered; tendrils mostly simple, each bearing a pair of lanceolate leaflets. *Br. Fl.* 1. *p.* 321. *E. Fl. v.* iii. *p.* 276. *E. Bot. t.* 670.

Moist meadows, pastures, and bushy places, frequent. *Fl.* July, Aug. ♃.—*Stems* two to three feet long, climbing. *Flowers* yellow. Cattle are said to be very fond of this common plant.

2. L. *palustris*, Linn. *Blue Marsh Vetchling.* Stalks many-flowered; tendrils branched, each bearing several elliptical lanceolate leaflets; stipules lanceolate. *Br. Fl.* 1. *p.* 322. *E. Fl. v.* iii. *p.* 278. *E. Bot. t.* 169.

In boggy meadows. A plant which the late Mr. Templeton supposed to be this, was found by him in a moist meadow a little north of where the Lagan Canal enters Lough Neagh, but I have not seen any Irish specimens. *Fl.* July, Aug. ♃.—*Stems* two to three feet high, climbing. *Leaflets* about two inches long. *Flowers* bluish purple.

3. [illegible] v. p. [illegible]

15. OROBUS. *Linn.* Bitter-vetch.

Calyx campanulate, 5-cleft, the 2 upper lobes the shortest. *Stamens* diadelphous. *Style* slender, linear, villous at the end. *Pod* cylindrical, oblong, 1-celled, 2-valved, many-seeded. *Seeds* with a linear hilum.—*Erect* herbaceous *plants.* Stipules *half saggitate.* Leaves *abruptly pinnate, with a short simple seta in place of the terminal leaflet.* Racemes *axillary, stalked. De Cand.*—Name; *ορω*, to *strengthen or invigorate*, and *βους*, an *ox*, yielding food for cattle. *Diadelphia. Decandria.*

1. O. *sylvaticus*, Linn. *Wood Bitter-vetch.* Stem branching, decumbent, hairy; leaves hairy, of many pairs; leaflets ovato-lanceolate, acuminate; stipules half saggitate; peduncles many-flowered, scarcely so long as the leaves; teeth of the calyx unequal, short; pod ovate, stalked. *Br. Fl.* 1. *p.* 321. *E. Fl. v.* iii. *p.* 272. *E. Bot. t.* 518.

Woods and bushy places, rare in Ireland. I received specimens of this plant from a wood within four miles of Cloghjordan, King's County, where it was first observed by Mr. Robert Hodgens, nurseryman. *Fl.* July. ♃.

2. O. *tuberosus*, Linn. *Common Bitter-vetch, or Heath-pea.* Leaves pinnate, elliptic-lanceolate; stipules half arrow-shaped, toothed at the base; stem simple, erect. *Br. Fl.* 1. *p.* 320. *E. Fl. v.* iii. *p.* 272. *E. Bot. t.* 104.

In mountainous pastures, thickets, and woods, frequent. *Roots* tuberous, having somewhat the flavour of liquorice, and is said to be often eaten by the Highlanders, by whom it is known by the name *Cormeille*. *Stem* one foot high, winged. *Flowers* in long-stalked axillary *racemes*, purple-veined. *Legume* long, pendulous, cylindrical, black.

§ *Hedysareæ*. De Cand.

Corolla papilionaceous. Stamens usually monadelphous; sometimes diadelphous, 1 and 9, or 5 and 5. Legume divided transversely into 1-seeded joints. Cotyledons thin, in germination rising above the ground, and acquiring a green colour.

16. ORNITHOPUS. *Linn.* Bird's-foot.

Legumes somewhat cylindrical, curved, of many close, single-seeded joints. *Keel* very small.—Name; *ορνις*, *ορνιθος*, a *bird*, and *πους*, a *foot*, from the similarity of the seed-vessels to a bird's-foot. *Diadelphia. Decandria.*

1. O. *perpusillus*, Linn. *Common Bird's-foot.* Leaves pinnated with 6—9 pairs of leaflets, and a terminal one; flowers capitate, bracteated; legumes curved upwards. *Br. Fl.* 1. *p.* 326. *E. Fl. v.* iii. *p.* 290. *E. Bot. t.* 369.

Sandy and gravelly soils. On the bare grassy pastures on the Sutton side of the Hill of Howth, above Mrs. Hannyngton's house, and near the coast immediately under it, in great quantity. *Fl.* June. ⊙.—*Stems* from two to six inches high, much branched at the base and spreading. *Leaflets* oval. *Flowers* white, with red lines.

ORD. 27. ROSACEÆ. *Juss.* Rose Family.

Sepals 5, below more or less combined into a tube, and thence 5-lobed, generally persisting, free or adherent with the ovary. Petals of the same number, rarely wanting, inserted upon the calyx; æstivation imbricated, mostly regular. Stamens inserted with the petals, usually indefinite; filaments with an incurved æstivation; anthers 2-celled, opening longitudinally. Carpels numerous, sometimes reduced and solitary, sometimes united among themselves, or with the tube of the calyx into one. Ovaries 1-celled. Styles simple, dilated upwards into variously formed stigmas, frequently lateral, distinct or rarely combined. Seeds 1—2, rarely more in each carpel, erect or inverted, without albumen (except in *Hirtella* and *Neillia*). Embryo straight: cotyledons leafy or fleshy.—*Herbs or trees. Leaves alternate, simple or compound, with two stipules at the base. Inflorescence various.*

§ I. *Spiræaceæ*. De Cand.

Follicles several, invested by the calyx. *Seeds* from one to six, suspended from the inner edges of the follicle.

1. SPIRÆA. *Linn.* Spiræa and Meadow-sweet.

Calyx 5-cleft, persistent. *Stamens* from 10 to 50, inserted along with the petals upon a disk adhering to the calyx. *Follicles* one or several, distinct, or occasionally cohering by the base. Seeds from 2 to 6.—Name, supposed to be the *σπειρεια* of Theophrastus. *Icosandria. Monogynia.*

1. S. *salicifolia*, Linn. *Willow-leaved Spiræa.* Leaves elliptic-lanceolate, unequally serrated, smooth; clusters terminal, compound. *Br. Fl.* 1. *p.* 223. *E. Fl. v.* ii. *p.* 367. *E. Bot. t.* 1468.

Woods and hedges, but scarcely indigenous. Hedges near Dundrum. *Fl.* July. ♄.—A small branching *shrub. Flowers* in crowded *racemes*, rose-coloured. A well known plant in gardens, of which there are several varieties, one of which has white flowers, and another has the flowers in large *panicles*.

2. S. *Ulmaria*, Linn. *Meadow-sweet, Queen of the Meadows.* Leaves interruptedly pinnate, downy beneath; the terminal leaflet largest and lobed; stem herbaceous; flowers cymose, with many styles. *Br. Fl.* 1. *p.* 223. *E. Fl. v.* ii. *p.* 368. *E. Bot. t.* 960.

Meadows, banks of ponds and ditches, frequent. *Fl.* July. ♃. *Stems* two to three feet high, branched upwards. *Leaflets* acuminate, very large, especially the terminal (generally) three-lobed one, alternate ones minute. *Flowers* yellowish-white, numerous, sweet scented.

§ 2. *Drupaceæ.* De Cand. *Amygdaleæ* Juss. & De Cand.

Fruit a solitary drupe, containing one or two seeds, hanging from the top of their cell. *Calyx* deciduous.—Trees or shrubs, *with simple stalked* leaves, *glandular* petioles, and *distinct* stipules. *All the parts abound in prussic acid.*

2. PRUNUS. *Linn.* Plum and Cherry.

Calyx inferior, 5-cleft. *Petals* 5. *Nut* of the *Drupe* with slightly prominent seams.—Name *προυνη* in Greek, according to Theophrastus. *Icosandria. Monogynia.*

* *Fruit covered with bloom. Young leaves convolute.*

1. P. *domestica*, Linn. *Wild Plum-tree.* Peduncles solitary or two together; leaves ovato-lanceolate, somewhat downy beneath; branches without spines. *Br. Fl.* 1. *p.* 220. *E. Fl. v.* ii. *p.* 355. *E. Bot. t.* 1783.

Woods and hedges, occasionally, scarcely wild. Hedges in the

County of Derry; *Mr. D. Moore.* *Fl.* May. ♄.—The original stock of the *plums* of our gardens.

2. P. *insititia*, Linn. *Wild Bullace-tree.* Peduncles in pairs; leaves ovato-lanceolate, downy beneath; branches ending in a spine. *Br. Fl.* 1. *p.* 220. *E. Fl. v.* ii. *p.* 336. *E. Bot. t.* 841.

Woods and hedges. Hedges near Merrion. *Fl.* May. ♄.—Small tree, having black globular *fruit*, with a fine bloom, sometimes of a waxy yellow.

3. P. *spinosa*, Linn. *Black-thorn or Sloe.* Peduncles mostly solitary; leaves elliptico-lanceolate, somewhat downy beneath; branches very spinous. *Br. Fl.* 1. *p.* 220. *E. Fl. v.* ii. *p.* 357. *E. Bot. t.* 842.

Hedges and coppices, frequent. *Fl.* April, May. ♄.—Resembling the last, but much smaller in all its parts, and the branches are more crooked and spinous. *Fruit* small, very austere.

* * *Fruit without bloom. Young leaves conduplicate.*

4. P. *Padus*, Linn. *Bird Cherry.* Flowers in racemes, deciduous, obovate or oval, glabrous, with two glands at the summit of the footstalk. *Br. Fl.* 1. *p.* 220. *E. Fl. v.* ii. *p.* 354. *E. Bot. t.* 1383.—*Cerasus Padus, De Cand. Lindl.*

Woods in the northern counties. Side of the Faughan river, County of Derry; *Mr. D. Moore.* In the Deer Park at Glenarm. *Fl.* May. ♄.—A small tree with acute *leaves*, doubly serrated. *Flowers* white. *Drupes* small, black; *nut* rugose.

5. P. *Cerasus*, Linn. *Wild Cherry.* Flowers in nearly sessile umbels; leaves ovato-lanceolate, somewhat downy beneath. *Br. Fl.* 1. *p.* 222. *E. Fl. v.* ii. *p.* 354. *E. Bot. t.* 706.—*Cerasus Avium, Mænch. Lindl.*

Woods. *Fl.* May. ♄.—The late Mr. Templeton observed the small red-fruited wild Cherry, which he supposed to be the *Prunus Cerasus* of Linnæus, growing abundantly on the banks of Lough Neagh, and many other places in the north of Ireland. He also observed the small black fruited wild Cherry, growing on the banks of Lough Neagh more sparingly. The black fruited variety he supposed to be the true *Prunus Avium* of Linnæus. Both kinds are well known in Scotland as the red and black *Geen.* The fruit of the latter is sweet and much prized, the former is very acid, and Mr. Templeton states it is not eaten by birds. To the black fruited variety he supposed all our cultivated Cherries belong, except, perhaps, the *Morella*, which he thought might belong to the other.

§ 3. *Fragariaceæ.* Richard. (*Dryadeæ* Vent.)

Fruit consisting either of small dry nuts or succulent drupeolæ, inserted upon a common receptacle, and invested with a dry permanent calyx. *Calyx* either 4—or 5-cleft, sometimes bearing bracteolæ on its tube, equal in number to the segments, and alternate with them. *Petals* 5. *Seed* solitary, erect, or inverted.—*Mostly* herbaceous *plants, very seldom* shrubs; leaves *usually compound;* stipulæ *adhering to the petiole.*

3. Rubus. *Linn.* Bramble.

Calyx 5-cleft. *Petals* 5. *Fruit* superior, of several-seeded juicy *drupes,* placed upon a protuberant spongy *receptacle.*[*] —Name of uncertain origin; perhaps from the Latin *ruber,* or the Celtic, *rub,* red. *Icosandria Polygynia.*

* *Leaves pinnate.*

1. R. *idæus,* Linn. *Raspberry.* Leaves pinnate, with five or three leaflets white and very downy beneath; footstalks channelled; stems nearly erect, downy and prickly; flowers drooping; petals as short as the calyx. *Br. Fl.* 1. *p.* 245. *E. Fl. v.* ii. *p.* 407. *E. Bot. t.* 2443.

Woods, ditch banks, and elevated subalpine cliffs, especially in the northern counties. Devil's Glen, County of Wicklow. On the side of the road called the Path, between Larne and Glenarm, and on elevated rocky hills near Florencecourt, County of Fermanagh. *Fl.* May, June. ♄.—*Stem* woody. *Leaflets* somewhat cut and serrated. *Fruit* scarlet, in a wild state.

* * *Leaves digitate or pedate.*

1. *Stem (mostly) biennial, woody.*

a. *nearly erect, not rooting.*

2. R. *suberectus,* Anderson. *Upright Bramble.* Stem nearly erect, not rooting, obsoletely angular; prickles uniform, few, small; leaves digitate, quinate; leaflets flexible, lower pair sessile or nearly so; panicle simple. *And. in Tr. of Linn. Soc. v.* xi. *p.* 218. *t.* 16. *Br. Fl.* 1. *p.* 244. *E. Fl. v.* ii. *p.* 406. *E. Bot. t.* 2572.

β. Prickles more numerous and rather larger. *R. plicatus, W. and N. t.* 1. *E. Bot. Suppl. t.* 2714.—*R. nitidus, E. Fl. p.* 404.

At the upper end of Sir Francis M'Naghten's Deer Park, Newtownlimavady, and other places in the County of Derry; *Mr. D. Moore.* County of Cork; *Mr. J. Drummond.* Near Headford, County of Galway; *Mr. Shuttleworth.* β. Near Clady and Kilrea,

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[*] The descriptions of the species in this difficult genus, as well as those of the roses, are mostly taken from Hooker's British Flora, and were chiefly drawn up by Mr. Borrer, to whom Mr. Moore sent specimens of the more doubtful species and had his opinion of them.

County of Derry; *Mr. D. Moore. Fl.* June—Aug. ♄.—*Stem* a little angular, mostly green, tinged with red above, the angle on the under side the largest, seldom hairy, but covered with minute black glands, particularly on the under surface and near the tops of the young shoots, which are nearly upright, and only bent a little at the extremities. *Leaves* pale green, rather rugose and slender, generally quinate, unless those near the flowers, which are mostly in threes, the upper one single. *Petals* small, pale white, rather long and narrow. *Fruit* seldom more than six in a cluster, small, bright red when ripening, black when ripe. β. Whole plant stouter, more prickly, with shoots more angular and decurved.

b. *Stem arched or prostrate, rooting.*

a. Prickles nearly uniform, confined to the angles of the stem.

3. R. *rhamnifolius*, W. and N. *Buckthorn-leaved Bramble.* Stem arched, obsoletely angular and furrowed, nearly naked; prickles uniform, straightish, (horizontal or deflexed); leaves quinate, of five stalked, roundish, acuminate, coriaceous leaflets, paler beneath; panicle repeatedly divided, diffuse, somewhat downy. *Br. Fl.* 1. *p.* 245. *E. Fl. v.* ii. *p.* 401. *E. Bot. Suppl. t.* 2604. *Lindl. Syn. p.* 92.—*R. cordifolius, W.* and *N. t.* 5. *Lindl. Syn. p.* 92.

Hedges in the County of Derry, frequent; *Mr. D. Moore.* Hedges on the road-side between Belfast and Comber. *Fl.* July, Aug. ♄.—*Stem* strong, decurved, somewhat zigzag, green below and purple towards the points. *Prickles* strong, decurved with yellow points, those at the bottom of the shoot small, green, and almost straight. *Leaflets* quinate, of a greyish colour, on long footstalks, especially the terminal one, cordate, with pretty long sharp points, irregularly cut and undulated, smooth above; hairy beneath and along the edges. *Panicle* compound, spreading and leafy, often very large, with many hooked prickles. *Sepals* long, with green points, woolly, and sometimes a few setæ. *Petals* obovate and notched at the point, sometimes white, but tinged with purple. *Fruit* large, black when ripe.

4. R. *fruticosus*, Linn. *Common Bramble or Blackberry.* Stem arched, angular, furrowed, mostly minutely hairy; prickles uniform, straightish (horizontal or deflexed); leaves digitate of five-stalked obovate coriaceous leaflets decurved at the edges, their underside and the elongated panicle white with close down. *Br. Fl.* 1. *p.* 246. *E. Fl. v.* ii. *p.* 309. *E. Bot. t.* 715.—*R. discolor, W.* and *N. t.* 20. *Lindl. Syn. p.* 93.—*R. abruptus, Lindl. Syn. p.* 92.

β. *R. vulgaris major, fructu albo Raii. Syn.* 467.

Hedges and thickets in the more open districts. β. On a hedge bank about two miles south of Bray-head, where it was first pointed out to me by Mr. Robert Hodgens. *Fl.* Aug. Sep. ♄.—*Stem* shrubby, of a dark red or purple, strongly angular, with intermediate furrows, tough and woody, biennial or often perennial, the barren ones smooth, arched, and, when coming in contact with loose earth, taking root at the extremity; the others erect and slightly downy at the upper part. *Prickles* numerous on the angles of the stem, sharply and strongly hooked, reddish. *Leaves* firm and durable, almost evergreen, of five oblong acute (or abruptly acute) or pointed, sharply and unequally serrated *leaflets*; which are dark green, smooth, or slightly hairy above; snow white, finely downy, and strongly veined, with a prickly rib beneath; the terminal one largest, with a long partial stalk; two next with much shorter partial stalks, each of which bears a considerably smaller, nearly sessile *leaflet*, so that the whole leaf is strictly pedate, the uppermost on the flowering *stems* only being ternate, or even simple. On the same branch are sometimes seen a few *leaves*, that are pale green at the back and merely hairy, not at all cottony or white. *Footstalks* in some degree hairy, all beset with strongly hooked prickles. *Stipules* bristle-shaped, hairy, in pairs upon each footstalk near the base. *Clusters* erect, oblong, rather densely panicled, twice compound, many flowered; their branches and stalks rather angular, white, and finely downy, without glandular hairs. *Bracteas* solitary, linear-lanceolate, white or hoary. *Flowers* erect, handsome. *Calyx* downy all over, reflexed in the flower as well as in the fruit, destitute of prickles and of glandular hairs. *Petals* of a delicate pink, white in the var. with white fruit. *Berry* nearly globular, of a sweet mawkish flavour, ripening late in autumn, a month later than *R. corylifolius.*

β. Prickles various, not confined to the angles of the stem.

5. R. *Koehleri*, W. and N. *Koehler's Bramble.* Stem decurved, somewhat angular and furrowed, hairy, glandular, setose; prickles numerous, unequal, curved and straight; leaves digitate, of five-stalked, ovate or elliptical leaflets; panicle much divided, somewhat corymbose. *Br. Fl.* 1. *p.* 247. *E. Bot. Suppl. t.* 2605.—*R. glandulosus, E. Fl. v.* ii. *p.* 403 *(excl. syn. of Bellardi, and perhaps the others.)*

Hedges near Newtownlimavady; *Mr. D. Moore. Fl.* July, Aug. ♄.—*Stems* green in the shade, red when exposed, decurved, or even prostrate, (scarcely arched unless supported,) very variable in size and length, and in the prominence of its angles. *Prickles* copiously scattered on every part of the stem, as well as on the stalks and midribs of the leaves, and on the panicle; extremely variable in curvature and size; intermixed with, and passing into *setæ*, which are also very numerous. *Leaves* thin and flexible until old, varying in size, and shape, and in the length of the point, which is often long and taper; serratures coarse, unequal; upper surface pale opaque green, with scattered hairs, rugose, often somewhat plicate at the nerves, under side paler; old leaves darker above, occasionally hairy beneath. *Panicle* often very large. *Calyx* segments hairy, very prickly, setose and glandulose, often elongated, more or less reflexed when in flower, often more spreading upwards. *Petals* white or pale pink, rather small, varying from strap-shaped to almost round, often jagged. *Fruit* black, shining, acid; *drupes* rather small and numerous, not depressed.

6. R. *corylifolius*, Sm. *Hazel-leaved Bramble.* Stem decurved, roundish; prickles straight, scattered, somewhat unequal, but not passing insensibly into setæ; leaves digitate of five ovate leaflets, the outermost sessile and lapping over the others;

calyx of the fruit spreading or reflexed. *Br. Fl.* 1. *p.* 248. *E. Fl. v.* ii. *p.* 408. *E. Bot. t.* 827.

Hedges and thickets, frequent. *Fl.* July, Aug. ♄.—*Stem* biennial; the barren ones very long and trailing, unless accidentally supported, sometimes arched, glaucous and purplish, green in the shade. *Prickles* usually straight, a little deflexed. *Setæ* few or none, except about the inflorescence, and these distinct from the prickles. *Leaflets* broadly ovate, with a cordate base, soft, hairy, paler or sometimes hoary at the back; intermediate pair on short stalks, on which the external pair is usually quite sessile. *Panicle* very various, sometimes broad and corymbose like that of *R. cæsius*, but less so than in most other species. *Flowers* white. A beautiful variety of this is found in the County of Derry by Mr. Moore, with large soft leaflets, of a rounder form than usual, and purple shining stems.

7. R. *cæsius*, Linn. *Dewberry*. Stem prostrate, round or nearly so, glaucous: prickles straight, unequal, passing insensibly into setæ, the length of the largest rarely equalling the diameter of the stem; leaves digitate of three or more, rarely five ovate leaflets, the outermost sessile; calyx embracing the fruit. *Br. Fl.* 1. *p.* 249. *E. Fl. v.* ii. *p.* 409 *E. Bot. t.* 826.

β. Stem stronger, obsoletely angular, leaflets generally five. *R. dumetorum*. *W. and N.*

Bushy places and borders of fields, frequent. *Fl.* June, July. ♄.—*Stem* weak, with many slender branches rooting at the extremities. *Prickles* usually straight, scarcely deflexed, varying in size and diminishing gradually, so as not to admit of a distinct line of separation between them and the *setæ*, with which the plant is also furnished. *Leaflets* broadly ovate, often lobed, pubescent above, more so and softer beneath, and of a paler colour, sometimes covered with long shining hairs; the outermost sessile, or with only hardly distinguishable stalks. *Panicle* corymbose; the divisions frequently cymose. *Flowers* few in *α*. more numerous in *β*. *Drupes* of the *fruit* large, juicy, black, with a fine glaucous bloom and agreeable acid flavour.

2. *Stem herbaceous or nearly so.*

8. R. *saxatilis*, Linn. *Stone Bramble*. Leaflets 3, slightly downy, runners creeping, herbaceous; panicle of few flowers. *Br. Fl.* 1. *p.* 252. *E. Fl. v.* ii. *p.* 410. *E. Bot. t.* 2233.

Stony mountainous places, more plentiful in the north; it is also to be met with about Killarney and in the County of Galway. *Fl.* June. ♃.—Erect, slender, eight or ten inches high, with a few weak straight prickles on the stem. *Leaves* two to three; *leaflets* ovate. *Petals* minute, narrow, greenish yellow. *Fruit* of very few, red, (comparatively) large clustered *drupes*.

* * * *Leaves simple.*

9. R. *Chamæmorus*, Linn. *Cloud-berry*. Diœcious; leaves simple, lobed; stem without prickles, herbaceous, single flowered. *Br. Fl.* 1. *p.* 252. *E. Fl. v.* ii. *p.* 112. *E. Bot. t.* 716.

On a mountain in the Stranagalvally range, County of Tyrone; *Mr. E. Murphy. Fl.* June. ♃.—Erect, eight to ten inches high. *Flowers* large, white. *Fruit* large, orange-red, of an agreeable flavour, and often eaten by the Norwegians and Laplanders.

4. FRAGARIA. *Linn.* Strawberry.

Calyx 10-cleft, segments alternately smaller. *Petals* 5. *Fruit* consisting of many minute *nuts*, placed upon a large fleshy deciduous receptacle.—Name from *fragrans, odorous*, on account of its fragrant smell. *Icosandria. Polygynia.*

1. F. *vesca*, Linn. *Wood Strawberry.* Calyx of the fruit reflexed; hairs of the peduncles widely spreading, those of the pedicels close-pressed, silky. *Br. Fl.* 1. *p.* 250. *E. Fl. v.* ii. *p.* 414. *E. Bot. t.* 1524.

Woods and thickets, frequent. *Fl.* May—July. ♃.

2. F. *elatior*, Ehrh. *Hautboy Strawberry.* Calyx of the fruit reflexed; hairs of the peduncles and pedicels widely spreading, somewhat deflexed. *Sm.*—*Br. Fl.* 1. *p.* 250. *E. Fl. v.* ii. *p.* 415. *E. Bot. t.* 2197.

Dunscombe's Wood, near Cork, scarcely indigenous; *Mr. J. Drummond. Fl.* June—Sept. ♃.

5. COMARUM. *Linn.* Marsh Cinque-foil.

Calyx 10 (or more) cleft, segments alternately smaller. *Petals* 5 (or more), shorter than the calyx. *Pericarps* inserted on a large, spongy, hairy, permanent *receptacle.*—Name, from *κομαρος*, a name of Theophrastus, applied to some plants of the Arbutus tribe. *Icosandria. Polygynia.*

1. C. *palustre*, Linn. *Purple Marsh Cinque-foil. Br. Fl.* 1. *p.* 251. *E. Fl. v.* ii. *p.* 433. *E. Bot. t.* 172.

Marshes and peat bogs, frequent. *Fl.* July. ♃.—*Stems* ascending. *Leaves* petioled, with seven lanceolate, deeply serrated *leaflets*, upper ones quinate or ternate, sessile, with a pair of ovate *stipules*. *Flower-stalk* branched. *Flowers* of a deep dingy purple. Very nearly allied to *Potentilla.*

6. POTENTILLA. *Linn.* Cinque-foil.

Calyx 10-cleft, segments alternately smaller. *Petals* 5. *Fruit* consisting of numerous minute *nuts*, placed upon a small dry *receptacle.*—Name from *potens, powerful*, from the medicinal properties attributed to some of the species.
Icosandria. Polygynia.

* *Leaves pinnate.*

1. P. *fruticosa,* Linn. *Shrubby Cinque-foil.* Leaves pinnate; leaflets (generally 5), oblongo-lanceolate, entire; stem shrubby. *Br. Fl.* 1. *p.* 251. *E. Fl. v.* ii. *p.* 416. *E. Bot. t.* 88.

Rock Forest, County of Clare. Near Headfort, County of Galway; *Mr. Shuttleworth. Fl.* June. ♄.

2. P. *anserina,* Linn. *Silver-weed.* Leaves interruptedly pinnate, serrated, silky, especially beneath; peduncles axillary, single-flowered; stem creeping. *Br. Fl.* 1. *p.* 251. *E. Fl. v.* ii. *p.* 417. *E. Bot. t.* 861.

Moist meadows and road-sides, frequent. *Fl.* June, July. ♃.—Varying much in the degree of silkiness; sometimes silky and white on both sides. *Flowers* large, yellow. *Leaflets* lanceolate.

* * *Leaves digitate.*

3. P. *argentea,* Linn. *Hoary Cinque-foil.* Leaves quinate; leaflets cuneiform, cut, white and downy beneath, their margins revolute; stem decumbent. *Br. Fl.* 1. *p.* 251. *E. Fl. v.* ii. *p.* 418. *E. Bot. t.* 89.

Barren gravelly places, but not very common. On Sugar-loaf Mountain, County of Wicklow. *Fl.* June. ♃.—*Flowers* terminal, small, yellow, sub-corymbose.

4. P. *reptans,* Linn. *Common creeping Cinque-foil.* Stem filiform, creeping; leaves quinate; leaflets obovato-cuneiform, serrated; peduncles axillary, single-flowered, longer than the leaf. *Br. Fl.* 1. *p.* 252. *E. Fl. v.* ii. *p.* 423. *E. Bot. t.* 862.

Meadows and pastures, and by way-sides. *Fl.* June—Aug. ♃.—*Stems* taking root at the joints. *Flowers* yellow.

* * * *Leaves ternate.*

5. P. *Fragariastrum,* Ehrh. *Strawberry-leaved Cinque-foil.* Leaves ternate; leaflets obovate, deeply serrated, silky on both sides (especially beneath); petals obcordate, as long as the calyx; stems procumbent. *Br. Fl.* 1. *p.* 253. *E. Fl. v.* ii. *p.* 425.—*P. Fragaria, Poir.*—*Fragaria sterilis,* Linn.—*E. Bot. t.* 1785.

Woods, banks, and dry pastures, frequent. *Fl.* March, April. ♃.

7. TORMENTILLA. *Linn.* Tormentil.

Calyx 8-cleft, segments alternately smaller. *Petals* 4. *Fruit* consisting of numerous minute *nuts,* placed upon a small dry *receptacle.*—Named from *tormina,* the *dysentery,* in the cure of which it was employed on account of its astringent qualities.

Icosandria. Polygynia.

1. T. *officinalis*, Sm. *Common Tormentil.* Leaves ternate, all sessile; leaflets lanceolate, inciso-serrate; stem ascending, dichotomous. *Br. Fl.* 1. *p.* 253. *E. Fl. v.* ii. *p.* 427. *E. Bot. t.* 863.—*Potentilla Tormentilla, Sibth. Nestl.*—*Potentilla erecta, Linn.*

Moors and heathy places, frequent. *Fl.* June, July. ♃.—*Root* large and woody, used medicinally, and by the Laplanders for staining leather of a red colour. *Peduncles* axillary and terminal.

2. T. *reptans*, Linn. *Trailing Tormentil.* Leaves ternate and quinate on footstalks, obovato-cuneiform, inciso-dentate; stem prostrate. *Br. Fl.* 1. *p.* 253. *E. Fl. v.* ii. *p.* 428. *E. Bot. t.* 864.—*Potentilla nemoralis, Nestl.*

Ditch banks near the Botanic Garden, Cork; *Mr. J. Drummond. Fl.* June, July. ♃.

8. GEUM. *Linn.* Avens.

Calyx 10-cleft, alternate segments minute. *Petals* 5. *Pericarps* with long geniculated *awns*. *Receptacle* elongated.—Name from γευω, *to yield an agreeable flavour.* The roots of *G. urbanum* are aromatic. *Icosandria. Polygynia.*

1. G. *urbanum*, Linn. *Common Avens, Herb Bennet.* Flowers erect; cauline leaves ternate, radical ones lyrato-pinnate. *Br. Fl.* 1. *p.* 254. *E. Fl. v.* ii. *p.* 429 *E. Bot. t.* 1400.

Woods and hedges, frequent. *Fl.* June. ♃.—One to two feet high. *Root-leaves* on long footstalks. *Flowers* small, yellow. *Petals* patent.

2. G. *rivale*, Linn. *Water Avens.* Flowers drooping; awns feathery; cauline leaves ternate, radical ones interruptedly pinnate and lyrate. *Br. Fl.* 1. *p.* 254. *E. Fl. v.* ii. *p.* 430. *E. Bot. t.* 106.

Woods and sides of mountains. Woodlands, County of Dublin, Brandon Mountain, &c. often proliferous. *Fl.* June, July. ♃.

9. DRYAS. *Linn.* Dryas.

Calyx 8—10-cleft, its segments equal. *Petals* 5—8. *Pericarps* with long feathery *awns*.—Name δρυς, the *oak*, from a distant similarity between their leaves.

Icosandria. Polygynia.

1. D. *octopetala*, Linn. *White Dryas on Mountain Avens.* Petals 8; leaves simple, serrated. *Br. Fl.* 1. *p.* 254. *E. Fl. v.* ii. *p.* 432. *E. Bot. t.* 451.

Burren mountains, County of Clare, abundant. County of Antrim; *Mr. Templeton.* Benyevena, County of Derry; *Mr. D. Moore. Fl.* June. ♃.—*Stem* short, procumbent. *Leaves* ovato-elliptical, white and downy beneath, petioled. *Flowers* large, white.

10. AGRIMONIA. *Linn.* Agrimony.

Calyx turbinate, covered with hooked bristles, 5-cleft, inferior. *Petals* 5, inserted upon the calyx. *Stamens* 7—20. *Fruit* of 2, small, indehiscent *capsules*, invested by the hardened calyx.—Name; corrupted from *Argemone*, given by the Greeks to a plant supposed to cure the cataract in the eye, called *αργημα.*
Dodecandria. Digynia.

1. A. *Eupatoria*, Linn. *Common Agrimony.* Cauline leaves interruptedly pinnate, terminal leaflet on a footstalk. *Br. Fl.* 1. *p.* 217. *E. Fl. v.* ii. *p.* 346. *E. Bot. t.* 1335.

Borders of fields, waste places, and road-sides. *Fl.* June, July. ♃.—Two feet high. *Leaflets* deeply serrated; intermediate smaller ones three to five-cleft. *Flowers* yellow, on a long simple or branched spike, with a trifid bractea at their base.—Doctor Hooker remarks that as the number of stamens are so variable in this plant, it would be better, perhaps, to place the Genus with its affinities in *Icosandria.*

§ 4. *Roseæ.* De Cand.

11. ROSA. *Linn.* Rose.

Calyx urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Petals* 5. *Pericarps* (or *Carpels*) numerous, bristly, fixed to the inside of the calyx.—Name, from the Celtic *Rhos*, (from *rhodd*, red); whence also the Greek name for a *rose*, Ροδον, was probably derived.
Icosandria. Polygynia.

* *Shoots setigerous, prickles scarcely curved.*

1. *Bracteas large.*

1. R. *Dicksoni*, Lindl. *Dickson's Rose.* Shoots setigerous; prickles scattered, slender, subulate; leaflets oval, coarsely and irregularly serrated, hoary, sparingly glandulose beneath; sepals long, simple; fruit ovato-urceolate. *Br. Fl.* 1. *p.* 224. *Borr.* in *E. Bot. Suppl. t.* 2707.—*R. Dicksoniana, Lindl. Syn.*

Said to have been found in Ireland by Mr. J. Drummond. *Fl.* June. ♄.—As this rose was not in the collection of roses found by Mr. Drummond in the south of Ireland, of which he sent me plants a year or two before he left the country for Swan River, I strongly suspect it was never found by him in a wild state. All that I know of the history of it is, that it was sent by the late Mr. James Lee, of the Hammersmith Nursery, among a collection purchased by the Dublin Society, for their garden at Glasnevin, in 1797, and marked as the single variety of *R. villosa*, under which name I also had it from them for the College Botanic Garden in 1808, and have cultivated it ever since. Mr. Drummond also got it a few years afterwards, in a collection given him for the garden of the Cork Institution, by the Royal Dublin Society, from whence it is probable he sent it to Mr. Sabine as an undescribed species. The semi-double var. of *R. pomifera* or *Apple Rose* of the gardens was sent by Lee as a variety of *R. villosa*, but no single variety of it was sent but the one mentioned above. *R. rubella* of *E. Bot. t.* 2601, was sent by Lee, along with the two others, as a variety of *R. spinosissima*, but it has not yet been found in Ireland.

2. R. *cinnamomea*, Linn. *Cinnamon Rose, or May Rose.* Shoots setigerous; prickles scattered, slender, subulate; leaflets lanceolato-oblong, simply serrated, downy and glandulose beneath; sepals long, simple; fruit small, ovate. *Br. Fl.* 1. *p.* 224. *E. Fl. v.* ii. *p.* 372.

Hedges on the east side of Mr. White's demesne at Woodlands, County of Dublin. Near Clady, County of Derry, naturalized. *Fl.* May. ♄. and irregularly throughout the summer. The double flowering *var.* is most common in gardens.

2. *Bracteas small or wanting.*

3. R. *spinosissima*, Linn. *Burnet-leaved Rose.* Prickles crowded, unequal, mostly straight, intermixed with setæ; leaflets small, simply serrated, their disk glandulose; calyx simple; fruit nearly globular. *Br. Fl.* 1. *p.* 226. *E. Fl. v.* ii. *p.* 375. *E. Bot. t.* 187.—*R. pimpinellifolia, Linn.—Sabine.*

Heaths, &c. chiefly on sand; most common near the coast, where it is more dwarf than when growing in inland situations. *Fl.* May. ♄.—*Stem* from three inches to three feet high, much branched. *Flowers* solitary, generally white, sometimes pink, rarely red. *Fruit* purplish-black. The numerous varieties of Scotch Roses, now so common in gardens, belong to this species.

4. R. *Hibernica*, Sm. *Irish Rose.* Shoots and ramuli sparingly setigerous; prickles scattered, unequal, larger, somewhat falcate; leaflets simply serrated, hairy beneath, their disk eglandulose; calyx pinnate; fruit nearly globular. *Br. Fl.* 1. *p.* 288. *E. Fl. v.* ii. *p.* 393. *E. Bot. t.* 2196.

β. leaflets smooth on both sides.

In hedges on the shore near Hollywood, Belfast Harbour, where it was first noticed by Mr. Templeton.—*β.* In cliffs of rocks on Benyevena, County of Derry; *Mr. D. Moore. Fl.* June—Oct. ♄.—*Root* creeping, stoloniferous. *Shrub* three to six feet high, dense, with ascending, much divided, reddish-brown branches. Larger *prickles* slightly curved, smaller subulate and straight; numerous on the root-shoots, few on the ramuli; a few setæ occur on both. *Leaflets* closely set, five or seven, rarely nine, ovate or of a rounder outline, acute, naked and somewhat glaucous above, hairy beneath, chiefly on the ribs and veins; serratures sharp, simple, occasionally rather unequal; *petioles* hairy, with falcate prickles, sometimes wanting, rarely any setæ or glands; *stipules* broad, smooth, slightly serrated, with tapering, slightly spread points; those next the flowers enlarged. *Flowers* rather small, often solitary or two together, sometimes in considerable fascicles, and then accompanied by ovato-lanceolate bracteas. *Peduncle* cylindrical, naked as well as the *calyx*, the segments of which are downy within, and at the edges only; shorter than the pale pink *petals*, with slightly leafy points, and a few pairs of shortish linear-lanceolate, entire, gland-tipped pinnæ. *Styles* included, hairy; *stigmas* somewhat prominent. *Fruit* nearly globular or urceolate, but short, blood-red, crowned with the erect or spreading segments of the *calyx*. The variety β. differs from the common appearance of the plant, by the leaflets being naked, which Mr. Moore thinks may have been partly occasioned by the nature of the exposed rocky situation where he found it. It perfectly agrees in every other respect.

5. R. *involuta*, Sm. *Prickly unexpanded Rose.* Prickles crowded, unequal, straight, intermixed with setæ; leaflets doubly serrated, hairy, glandulose beneath; stem dwarfish. *Br. Fl.* 1. *p.* 229. *E. Fl. v.* ii *p.* 377. *E. Bot. t.* 2068. R. gracilis

Glengariff, County of Cork; *Mr. J. Drummond*, as stated by Dr. Hincks, but I have not seen Irish specimens. *Fl.* June. ♄.

6. R. *Sabini*, Woods. *Sabine's Rose.* Shoots and ramuli setigerous; prickles scattered, unequal, straight or nearly so; leaflets doubly serrated, hairy, glandulose beneath, calyx somewhat pinnate. *Br. Fl.* 1. *p.* 229. *E. Bot. Suppl. t.* 2594.

β. prickles more numerous; leaves very hairy; calyx almost simple. *R. Doniana, Woods. E. Bot. Suppl. t.* 2601.

γ. *Hook.* larger prickles falcate; calyx almost simple. *R. gracilis, Woods, l. c. p.* 186. *E. Fl. v.* ii. *p.* 379. *R. villosa, E. Bot. t.* 583, *(figure only.)*

α. Near Umbra rocks, Magilligan. β. Found along with var. α. γ. Bennedy Glen, near Dungiven; *Mr. D. Moore. Fl.* June. ♄.—Five to eight feet high, upright; branches reddish-brown, spreading, somewhat drooping, much divided. *Prickles* numerous on the stem, rather thinly scattered on the ramuli, very unequal in size; nearly straight in α. and β.; the larger ones considerably curved in γ. *Leaflets* seven or nine, elliptical or ovate, acute, but rarely acuminate, sharply and doubly serrated, edged with glands; hairy in various degrees, and thence more or less green or hoary above; beneath paler and more hairy, and sprinkled on the ribs and veins with glands; petioles also hairy and glandulose, with small straight prickles, and often setose; *stipules* rather broad, somewhat dilated upwards, pointed and divaricate. *Flowers* solitary or in threes, in α. frequently in larger bunches than in β. which in Mr. Moore's specimens are mostly solitary. *Peduncle* cylindrical, setose, as is mostly the *calyx-tube; segments* hairy, setose, and glandulose, variously but not copiously pinnate, with a long unusually leafy point, nearly as long as the petals. *Petals* pink, often beautifully mottled, or white. *Styles* included, hairy; *stigmas* varying in prominence. *Fruit* dark-red, globular or somewhat urceolate, persistent; *calyx-segments* erect, more or less spreading or recurved.

✱ ✱ *Shoots mostly without setæ.*

I. *Leaves glandulose.*

a. *Prickles uniform or nearly so; setæ none or very few.*

7. R. *villosa*, Sm. *Villous Rose.* Fruit globose, partly

bristly; calyx slightly compound; prickles nearly straight; leaflets rounded, bluntish, all over downy.—*R. mollis, E. Bot. t.* 2459.

Hedges near Fermoy, County of Cork; *Mr. J. Drummond.* Near the base of Umbra rocks, Magilligan, County of Derry; *Mr. D. Moore. Fl.* June, July. ♄.—This species seems still to be involved in much uncertainty. Mr. Borrer, in *Br. Fl.*, describes the leaflets as being plentifully covered with glands, especially beneath, having the petals also fringed with them, and the plant as giving out a strong turpentine scent; which characters, are not noticed in *E. Fl.* nor in the description of *R. mollis* in *E. Bot.* quoted for *R. villosa* in *Br. Fl.* nor do they apply to our specimens, which have the leaflets downy on both sides, but not glandulose, unless amongst the serratures. One of our varieties has the fruit naked, and the root shoots as well as the flowering ramuli have a few setæ; which would almost induce one to think it a hybrid between *R. tomentosa* and *R. sabini.* Our plant, however, agrees so well with the figure of *R. mollis* in *E. Bot.* and general description, unless in the naked fruit, that we have no doubt of its being the species there described, more particularly so, as Mr. Borrer and Mr. Forster, to whom specimens were sent, referred it to that species. A distinct rose from either this or *R. tomentosa* frequently occurs in the northern counties, to which many of Mr. Borrer's remarks on *R. villosa* in *Br. Fl.* would well apply; indeed the more glandular leaflets, cupped flowers, petals fringed with glands, and the strong turpentine scent, are characters which at once distinguish it from any state of *R. tomentosa.* It also differs from our *R. villosa* in having the leaflets narrower, and more pointed; the fruit longer, with the segments of the calyx much more pinnated. The whole plant, especially when dry, is rigid, and rough to the touch from the numerous glands. We think it is not unfrequently taken for *R. scabriuscula* of Winch, as well as *R. tomentosa* of Smith, and perhaps *R. mollis* of *E. Bot.*

8. R. *tomentosa*, Sm. *Downy-leaved Rose.* **Prickles mostly simple, uniform, straight or curved; leaflets doubly serrated, downy, slightly glandulose; calyx more or less pinnated. *Br. Fl.* 1. *p.* 231. *E. Fl. v.* ii. *p.* 383. *E. Bot. t.* 990.**

Hedges and bushy places, not unfrequent. *Fl.* June, July. ♄.—This, though one of the most variable of our native roses, may be readily traced through its different forms. The figure in *E. Bot.* is an excellent representation of the general appearance of the plant; it, however, varies much according to circumstances; in favourable situations it frequently assumes a very luxuriant habit, when both the leaves and fruit become larger and differently shaped. That luxuriant states of this species, were what formerly led to the supposition that the *Apple Rose* of the gardens, *R. pomifera*, was a native of Britain, we have no doubt; which opinion Mr. Moore's specimens and plants go far to prove; some of which are so different from the common appearance of the plant, and so like the Apple Rose of the gardens in every respect, that were it not for intermediate states, we would, without hesitation, refer them to that species. Mr. Moore finds a singular var. near Garvagh, which is of a more luxuriant growth than usual, having the flowers nearly white, with strong and much hooked prickles. As stated in *Br. Fl.* this species is best distinguished from *R. villosa* by the more copiously pinnate *sepals*, with the fruit of a more slender figure, and the leaflets are more narrowly elliptical. They are often without glands.

9. R. *scabriuscula*, *Rough-leaved Dog Rose.* Fruit roundish-ovate, bristly as well as the flowerstalk; prickles awl-shaped, nearly straight; leaflets elliptical, roughish with minute hairs. *E. Bot. t.* 1896. *Winch. Fl. N. p.* 33.—*R. tormentosa*, *β. E. Fl. v.* ii. *p.* 383. [illegible]

Near the Seven Churches, County of Wicklow. North of Ireland, near Ballinascreen; *Mr. D. Moore. Fl.* June, July. ♄.—I have for the present followed Mr. Winch in considering this distinct from *R. tomentosa;* not, however, doubting its affinity to that species, though, at the same time, we think it has characters sufficiently marked to distinguish it from it. As Mr. Winch remarks, "the buds are peculiarly handsome when expanded so as to show the bright red tints with which the outer edges of the snow white petals are marked." The bush is also of a more slender and straggling habit; whether the colour of the flowers may be useful as a distinguishing mark in this species, we think is doubtful, as the var. noticed under our *R. villosa*, which has the petals always of a vivid pink, seems more nearly allied to this, than to that species.

10. R. *inodora*, Fries. *Slightly-scented Briar.* Prickles uniform, uncinate; leaves doubly serrated, hairy, mostly glandulose beneath; calyx-segments closely pinnate, mostly deciduous; ramuli, without setæ; fruit elliptical or nearly globular. *Br. Fl.* 1. *p.* 233.—*R. Borreri*, *Woods. E. Fl. v.* ii. *p.* 388.—*R. dumetorum*, *E. Bot. t.* 2579.—*R. rubiginosa, var. inodora, Lindl. Ros. p.* 88. [illegible]

Hedges near the old church of Portmarnock and other places in the County of Dublin. *Fl.* June, July. ♄.—Sparingly stoloniferous, six to eight feet high, stout, arched with ascending drooping branches. *Prickles* not very numerous, all strongly hooked, their base dilated; flowering *ramuli* frequently unarmed. *Leaflets* flat, rarely carinate, broadly ovate, or sometimes narrower, scarcely acuminate; upper surface darkish green, mostly shining and inconspicuously hairy; under side paler and more hairy, sprinkled, though often sparingly and inconspicuously, with minute *glands*, which give out a slight turpentine fragrance, such as also fringe the stipules and the truly double serratures; *petioles* downy and glandulose, with small hooked *prickles*. *Flowers*, as in all the neighbouring species, solitary, three together, or in larger bunches, according to the vigour of the bush and the part on which they grow. *Peduncle* mostly shorter than the ovate pointed *bractcas*, beset with feeble setæ or with soft pale *hairs*, more rarely naked. *Calyx-tube* mostly naked, sometimes sparingly setose; *segments* about as long as the petals, usually naked at the back, with a leafy point, and closely set, shortish, lanceolate, often compound *pinnæ*, fringed with gland-tipped teeth. *Petals* pale pink, moderate in size and in expansion. *Styles* included, hairy; *stigmas* depressed. *Fruit* varying in length, scarlet, soft and pulpy, and with the same taste as that of *R. canina* when ripe.

11. R. *micrantha*, Sm. *Small-flowered Sweet-Briar.* Prickles uniform, uncinate; leaflets doubly serrated, hairy, glandulose

beneath; calyx-segments and pinnæ elongated, deciduous; fruit small, elliptical and ovate; ramuli sparingly deciduous. *Br. Fl.* 1. *p.* 233. *E. Fl. v.* ii. *p.* 387. *E. Bot. t.* 2490.

Open bushy commons and hedges. Near Cork; *Mr. J. Drummond. Fl.* June, July. ♄.—"Scarcely stoloniferous, five to eight feet high, of loose straggling growth, with arched shoots and spreading branches. *Prickles* shortly hooked, not numerous, nor intermixed with straight subulate ones, but a few strictly setaceous, and a few real *setæ*, often occur immediately under the inflorescence; occasionally the flowering ramuli, and sometimes the points of the leafy shoots, are altogether unarmed. *Leaflets* broadly elliptical or ovate, of a rather pale green, and somewhat shining and slightly hairy above; beneath more hairy, and sprinkled copiously, as are the *petioles* and usually the *stipules*, with rusty glands, diffusing a fragrance similar to that of the *sweet-briar*, but less powerful, and sometimes, according to Woods, intermixed with a turpentine odour. *Peduncle* setose. *Calyx-tube* naked, or with a few *setæ*, those at its base generally not larger than the others; its segments, with a long leafy point and narrow lanceolate pinnæ, fringed with gland-pointed teeth. *Petals* small, shorter than the calyx, pale pink. *Styles* included, not hairy; *stigmas* slightly protuberant. *Fruit* coral-red, or scarlet, pulpy when ripe, and flavoured like that of *R. canina;* the primordial, bluntly elliptical, never pear-shaped; the secondary ovate, with a slight neck, often somewhat oblique. The *flowers* are for the most part neatly cupped, as in *R. systyla*, and delicately fragrant. It is difficult to distinguish this plant satisfactorily by characters from *R. inodora*, yet it differs considerably in habit, its ramification being more tufted, although it sends out long arched shoots, and also in its lengthened calyx-segments and its small fruit. It is, in fact, more likely to be united to *R. rubiginosa* by botanists who separate those two, yet deny to this the rank of a species. The justice of its claim to such rank I am far from asserting positively, yet its uniform and much less numerous prickles, its small pulpy fruits, all rounded at the base, and its deciduous calyx-segments, seem constant characters; and its smaller and paler flowers, and arched straggling shoots, distinguish it from *R. rubiginosa* at first sight." *Borrer.*

b. *Prickles various, intermixed with setæ.*

12. R. *rubiginosa*, Linn. *True Sweet-Briar.* Prickles numerous, larger uncinate, smaller subulate; leaflets doubly serrated, hairy, glandulose beneath, mostly rounded at the base; calyx-segments and pinnæ elongated, persistent; primordial fruit pear-shaped. *Br. Fl.* 1. *p.* 234. *E. Fl. v.* ii. *p.* 385. *E. Bot. t.* 991.—*R. Eglanteria, Woods.*

Hedges near Passage; *Mr. J. Drummond.* Near Belfast; *Mr. Templeton.* By the side of the river Roe, near Newtownlimavady; *Mr. D. Moore. Fl.* June, July. ♄.—Stoloniferous, four to six feet high, compact and densely branched in general, and the shoots seldom arched. *Prickles* numerous; the large uncinate ones on the stem and branches, mixed irregularly with abundance of smaller, some slightly curved, and some straight, subulate, and setaceous; and some real *setæ*, which last, however, are not always present; the flowering twigs are occasionally unarmed, but have more usually binate uncinate *prickles* near the base of the *leaves*, and others scattered, varying in size and curvature. *Leaflets* flat, or often concave, pale bright green, more or less hairy, ovate, or broadly elliptical, or often almost round, occasionally narrower and more pointed, but scarcely tapering to the base; sprinkled copiously beneath, on the edges and on the petioles, with fragrant viscid *glands*, which are found also on the backs and edges of the *stipules*. *Peduncles*, and often the calyx-tube, beset with *setæ*, of which those at the base of the latter are usually larger; segments setose and glandulose, with a lengthened leafy point and narrow lanceolate *pinnæ*, spreading almost at right angles, with gland-pointed teeth. *Petals* deep pink, equal to the calyx, or rather shorter. *Styles* included, slightly hairy; *stigma* scarcely protuberant. *Fruit* changing first to yellow then to orange-red, its substance thin, scarcely pulpy, and almost insipid when ripe; when in bunches the primordial is pear-shaped, the secondary obovate, but less tapering at the base; the others elliptical. The fragrance of the leaves is compared to that of ripe apples. *Borrer*. Mr. Templeton was of opinion that our wild *sweet-briar* is different from the plant sold under that name in the nurseries.

2. *Leaves eglandulose.*

a. *Styles distinct, included or nearly so.*

13. R. *canina*, Linn. *Common Dog Rose*. Prickles uniform, hooked; leaves naked or slightly hairy, their disk eglandulose; calyx-segments fully pinnate, deciduous; styles not united; shoots assurgent. *Br. Fl.* 1. *p.* 236.

α. Leaflets naked, carinate; serratures simple. *R. canina*, *Woods. E. Fl. v.* ii. *p.* 394.

a. green. *á. Woods. R. canina, E. Bot. t.* 992.

b. grey. *β. Woods.*

β. sarmentacea. Leaflets naked, carinate; serratures compound. *R. sarmentacea, Woods. E. Bot. Suppl. t.* 2595. *R. canina, Fl. Lond.*

a. green. *β. Woods. R. sarmentacea*, Swartz.

b. grey. *α. Woods. R. glaucophylla, Winch.*

γ. surculosa. Leaflets naked, flat; serratures simple. *R. surculosa, Woods. R. venosa, Swartz. R. canina, β. E. Fl.*

a. green. *β. Woods.*

b. grey. *α. Woods.*

δ. dumetorum. Leaflets more or less hairy, flat.

a. hairy on both sides. *R. dumetorum,* "*Thuil.*" *Woods, l. c. p.* 217. *E. Fl. v.* ii. *p.* 292. *Borr. in E. Bot. Suppl. t.* 2610.

ε. Forsteri. Leaflets more or less hairy, not flat. *R. collina, Woods, l. c. p.* 219.—*R. Forsteri, E. Fl. v.* ii. *p.* 392. *Borr. in E. Bot. Suppl. t.* 2611.

Very common in hedges and thickets. All the varieties were found near Ballinascreen, Co. Derry, by Mr. Moore. β. and δ. I found near Glenarm, Co. Antrim. *Fl.* June, July. ♄. The forms above mentioned are not so defined, but that connecting varieties may be found. In all of them the *ramification* varies in denseness, and the shoots are more or less arched or erect according to the vigour of the plant; the *prickles* are not very numerous, hooked in various degrees and compressed, and their base considerably dilated; the *leaflets* vary in width, their serratures, although scarcely compound, except in β., are mostly irregular in size; the *bracteas* vary in size; the *peduncle* and *calyx-tube* are most commonly naked, their setæ, when present, feeble and not numerous; the *calycine segments* are free from *glands*, or more or less copiously fringed with them: the *styles* are hairy; the *fruit* is coral red, or more scarlet, soft and pulpy when ripe, with a pleasant somewhat acid taste. The principal *vars.*, as they are now assumed to be, are excellently described by Woods, who, the better to bring them into notice,* distinguished them as species. I shall add a few remarks on each. α. grows six to ten feet high. It has usually lanceolate *leaflets*, not rounded at the base, with a small, often twisted point, and rather small acuminate serratures; *petioles* with almost straight prickles, and mostly, not always, bare of hairs, except a few on the channelled upper side; *peduncle* and *calyx-tube* generally naked, the latter more rarely setose than the former; *calyx-segments* loosely pinnate, the *pinnæ* entire or toothed; the *disk* of the receptacle sometimes very prominent; *styles* included; *stigmas* depressed; *fruit* oblong, generally tapering to each end, especially in the modification *a*; which is distinguished by its shining bright green leaves. Woods describes his *var.* ε. with a subglobose *calyx-tube*.—β. *sarmentacea* resembles α. in growth and habit, in *styles* and *stigmas*, in the disk of the receptacle, and in the variation of the *calyx-segments*. In its extreme state it appears well distinguished by its double serratures, the points of which are often divaricate, but although often really double, they are sometimes only apparently so from a fringe of glands; and every gradation in this respect is to be met with between it and α. The *leaves* vary much in width in different specimens, and the *fruit* in size. It is mostly oblong, but Mr. Woods found it nearly globular in his *var.* δ., a North of England plant of large growth. (My Glenarm specimens have the fruit similar.) In β. γ. and δ. the peduncle is sometimes naked, has sometimes soft hairs and sometimes feeble *setæ*.—γ. *surculosa* approaches δ. in aspect, from the flatness of its leaves, and, usually, their rounded figure. It has the serratures rather coarse; *prickles* on the *petioles* considerably hooked; *pinnæ* of the *calyx* rather closely set and usually entire; *styles* somewhat protruded, with a round head of *stigmas*; *fruit* short, elliptical or ovate, and somewhat urceolate. The green leaved modification, *a.*, is of humbler growth

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* See his remarks in *Tr.* of *Linn. Soc.* *v.* xii. *p.* 170. Lindley well observes, "Surely it is not surprising that this most common species of the genus, whose fruit is scarcely ripe before it is devoured by small birds, and deposited by them in every possible variety of soil and situation, should frequently assume features considerably different from its more general appearance." He has, however, separated as *species*, in his *Syn. Br. Fl.*, several forms which he had made vars. in his *Monograph*.

than the other, which rivals the larger forms of α. in size. This *var.* and α. seem less inclined to spread by suckers than the other *vars.* of the species. The British (and Irish) forms of δ. *dumetorum*, is often of humble and feeble growth, but vigorous plants also occur, six to eight feet high. It has much general resemblance to *R. inodora.* It bears somewhat small, but rather uncinate *prickles*, numerous for this species; *leaflets*, for the most part, broadly oval, the terminal one sometimes almost cordate, their serratures coarse, their hue dull green but shining, the hairs on the upper surface being appressed and very inconspicuous; *calyx-pinnæ* varying in closeness; *styles* nearly or quite included; *stigmas* in a round head; fruit elliptical, varying in length. Plants agreeing with this *var.* in pubescence, but in other respects more like α., sometimes occur. The first form, *a.*, of ε. *Forsteri*, is connected by intermediate variations with the other form, *b.*, on the one side, and with δ. on the other. In its proper state it has *leaflets* pale green and concave, as those of *R. rubiginosa* often are; *serratures* shallow, sometimes indistinctly compound; *petioles* hairy or downy, more or less glandulose; *peduncle* mostly naked, sometimes hairy, very rarely feebly setose. Its *prickles* are as in δ.—The next form, *b.* 1., but for the existence of intermediate plants, might well be held a species. Its growth is mostly stout and dense; *prickles* less dilated at the base, and less hooked than in the other *vars.*; *foliage* with a strong glaucous tinge, serratures coarse, often equal; *petioles* downy, usually, not always, without glands; *peduncle* and *calyx-tube* naked; *cal.-segments* rather closely pinnate; *styles* included; *stigmas* varying in prominence, considerably hairy; *fruit* elliptical, often so short as to be almost globular. The remaining form, *b.* 2., has highly cæsious twigs and more pubescent grey leaves. Its flowers are more deeply coloured than is usual in the species, in other respects it approaches nearest to δ. and to ε. *a.*, although its leaflets are carinate. From the tints of the foliage and flowers it has a general resemblance to *R. cæsia.* This form appears rare. It has not been observed in Ireland. Mr. Borrer finds it at Henfield in England.

14. R. *cæsia*, Sm. *Glaucous Dog Rose.* Prickles uniform, uncinate; leaflets doubly serrated, downy, their disk eglandulose; calyx sparingly pinnate; styles not united: shoots assurgent. *Br. Fl.* 1. *p.* 239. *E. Fl. v.* ii. *p.* 389. *E. Bot. t.* 2367.

Plentiful near Belfast; *Mr. Templeton.* Dungiven, County of Derry; *Mr. D. Moore. Fl.* June, July. ♄.—Stoloniferous, about five feet high, upright, densely branched. *Leaves* elliptical, pointed, downy beneath, very slightly so or quite smooth above; serratures sometimes regularly double, sometimes imperfectly so; *petioles* glandulose, and usually downy or hairy; *stipules* fringed with glands, downy or almost naked; those next to the flowers changed into broad, elliptical, pointed bracteas. *Flowers* usually solitary. *Peduncle* naked, or sparingly setose. *Calyx-tube* elliptical, naked, and, like the leaves and young twigs, very glaucous; *segments* about as long as the petals, broad at the base, sometimes glandulose at the back, sometimes bare of glands in every part, and only downy at the edges, somewhat leafy at the point, and bearing a few narrowly lanceolate *pinnæ*, which are either entire or toothed with *glands. Petals* uniform, pink or white. *Styles* nearly, or quite included, hairy; *stigmas* a round prominent mass. *Fruit* ovato-urceolate, scarlet, soft and pulpy when ripe, before which it loses the segments of the calyx.

b. Styles united in a column, mostly exserted.

15. R. *systyla*, Woods. *Close-styled Dog Rose.* Prickles uniform, uncinate; leaves simply serrated, their disk eglandulose; calyx-segments sparingly pinnate, deciduous; styles united, hairless; shoots assurgent. *Br. Fl.* 1. *p.* 240. *E. Fl. v.* ii. *p.* 395. (*excl. from both the foreign syns.*)—*R. collina, E. Bot. t.* 1895. (*excl. syn.*)

Hedges near Cork; *Mr. J. Drummond. Fl.* June, July. ♄.—Scarcely stoloniferous. "Often ten or twelve feet high, vaguely branched, and with strong arched shoots. *Prickles* on the stem, not much dilated in general at the base, compressed, and often much enlarged in the lower part, so as to be almost triangular, with a straight point, or a short, hooked beak; those on the ramuli usually in substipular pairs. *Leaflets* more generally five than seven, carinate, lanceolate or elliptical, bright green and shining, or rarely opaque above, paler and slightly hairy beneath; *serratures* tolerably regular; *petioles* downy, with curved *prickles*, with or without glands. *Peduncle* rather long, with numerous glands or short *setæ*, a few of which are rarely found on the tube of the calyx. *Calyx-segments* broad and short, with a tapering point and linear-lanceolate *pinnæ*, entire or with a few gland-tipped teeth. *Petals* longer than the calyx, pink, sometimes white. Column of *styles* usually protruded, but variable in length; occasionally quite included; *stigmas* forming a conical head. *Fruit* oblong, or sometimes globular, pulpy and orange-red when ripe, flavoured like that of *R. arvensis.* The habit of the plant, when vigorous, of all our wild Roses, most resembles that of *R. canina.* The prickles on young strong shoots are generally crimson or rich dark purple, and the young foliage tinged with reddish brown. The *flowers* often form large bunches, and are generally of a peculiarly pleasant pink, with the stamens and the base of the petals of a glowing orange tint." *Borrer.*

16. R. *arvensis*, Huds. *Trailing Dog Rose.* Prickles uncinate, those of the ramuli feeble; leaves simply serrated, deciduous, (glaucescent beneath), their disk eglandulose; calyx-segments sparingly pinnate, deciduous; styles united, hairless; shoots trailing. *Br. Fl.* 1. *p.* 241. *E. Fl. v.* ii. *p.* 397. *E. Bot. t.* 188.

Plentiful in hedges and bushy places near Dublin. Near Ballynahinch, County of Down; *Mr. Templeton. Fl.* June, July. ♄.—*Bush* scarcely a yard high when unsupported, with trailing shoots, running to a great length, especially when growing in hedges, with much divided, entangled, feeble *ramuli*, which occasionally produce rugged excrescences and take root. *Prickles* numerous, not much dilated at the base, uncinate, those on strong shoots compressedly conical, with a straight or curved point; those on the ramuli few and scattered, small, more or less curved. *Leaflets* thin, nearly flat, coarsely serrated, dull green, paler, and somewhat glaucous beneath, naked on both sides, or slightly hairy beneath, chiefly on the mid-rib ; on some plants they are elliptical, ovate, or almost round ; on others, much elongated ; *petioles* hairy, or glandulose, or both, with falcate *prickles*. *Flowers* copiously produced, often in large bunches, with lanceolate *bracteas*, white, large and handsome, opening flat, with a slight fragrance at first, but soon becoming unpleasant. *Peduncle* long, sprinkled with almost sessile glands. *Segments* of the *calyx* reflexed by the time the petals fall, broad and short, with an acute point shorter than the petals, and a few small, entire, lanceolate *pinnæ*. Column of *styles* often overtopping the stamens, persistent ; *stigmas* in a round head. *Fruit* small, spherical, ovate, or elliptical, sometimes long and slender, its length varying almost in accordance with that of the leaflets ; blood-red when ripe, with an orange-red pulp of a pleasant peculiar flavour. *R. arvensis* is distinguished from all the other British species by its trailing habit.

§ 5. *Sanguisorbeæ.* Juss.

Nuts one or two, enclosed within the dry tube of the calyx, which is contracted at the orifice. *Calyx* 3—5-cleft, the divisions with a valvular æstivation. *Petals* usually wanting, sometimes four, cohering at the base into a monopetalous corolla. *Seeds* suspended, very rarely erect.—Herbs *or* shrubs. Leaves *often compound.* Flowers *minute.*

12. ALCHEMILLA. *Linn.* Lady's Mantle.

Perianth inferior, 8-cleft, the 4 alternate and outer segments the smallest. *Fruit* one or two-seeded, surrounded by the persistent perianth.—Name from the Arabic *alkemelyeh, alchemy*, from its pretended alchemical virtues.

Tetrandria. Monogynia.

1. A. *vulgaris*, Linn. *Common Lady's Mantle.* Leaves plaited, many-lobed, serrated. *Br. Fl.* 1. *p.* 70. *E. Fl. v.* i. *p.* 223. *E. Bot. t.* 597.

β. minor, leaves very pubescent. *A. hybrida. Pers.*

Woods and dry elevated pastures, abundant. β. on Mam-Turk, and other mountains in Cunnamara. *Fl.* June, July. ♃.—One foot high, or more. *Radical leaves* large, on long footstalks, those on the stem with connate toothed stipules, upper ones sessile and very small. *Lobes* six to nine. *Flowers* in many, rather lax, corymbose, terminal clusters, yellow green. *Germens* one to two. *Seeds* one to two. *Style* lateral.

2. A. *alpina*, Linn. *Alpine Lady's Mantle.* Leaves digitate, serrated, white and satiny beneath. *Br. Fl.* 1. *p.* 70. *E. Fl. v.* i. *p.* 224. *E. Bot. t.* 244.

Mountain cliffs. On Brandon, County of Kerry, and Ben Bulben, County of Sligo. *Fl.* July, Aug. ♃.—One of the most elegant of our native plants. *Inflorescence* similar to that of *A. vulgaris;* but the leaves are very different, and the leaflets are beautifully silky on the under side.

3. A. *arvensis*, Sm. *Field Lady's Mantle, or Parsley Piert.* Leaves trifid, pubescent; lobes deeply cut; flowers sessile, axillary. *Br. Fl.* 1. *p.* 70. *E. Fl. v.* i. *p.* 224. *E. Bot. t.* 1011.—*Aphanes arvensis, Linn.*

Fields and gravelly soils, frequent. *Fl.* May—July. ♃.—*Stems* branched, leafy, four to five inches long, frequently prostrate. *Leaves* alternate. *Stipules* large. *Stam.* varying in number. *Germens* one or two.

13. POTERIUM. *Juss.* Garden-Burnet.

Flowers collected into a head, with three or four bracteas at the base of each; upper ones fertile. *Barren fl. Calyx* of four deep segments. *Corolla* 0. *Stam.* 30—40, with very long flaccid filaments. *Fertile fl. Calyx* tubular, contracted at the mouth, with four deciduous teeth. *Pistils* 2. *Stigmas* tufted. *Pericarps* 2, one-seeded, invested with the hardened 4-angled tube of the calyx.—Name from *poterium*, a *drinking cup;* the plant having been used in the preparation of a drink, called in England a *cool-tankard.*

Monæcia. Polyandria.

1. P. *Sanguisorba*, Linn. *Common Garden-Burnet.* Spines none; stem somewhat angular. *Br. Fl.* 1. *p.* 407. *E. Fl. v.* iv. *p.* 147. *E. Bot. t.* 860.

Dry pastures and gravelly banks, more generally in the limestone districts, frequent. *Fl.* July. ♃.—One to two feet high. *Leaves* pinnate, with ovate, serrated *leaflets. Flowers* dull purplish. The leaves smell and taste like cucumber, and are sometimes used in England in salads.

ORD. 28. POMACEÆ. *Lindl.* Apple Family.

Calyx inferior, 5-toothed; the odd segment posterior. Petals 5, unguiculate, inserted in the throat of the calyx; the odd one anterior. Stamens indefinite, inserted in a ring in the throat of the calyx. Disk thin, clothing the sides of the limb of the calyx. Ovarium from 1 to 5-celled, seldom spuriously 10-celled; ovules usually 2, collateral, ascending, very rarely solitary; styles from 1 to 5; stigmata simple. Fruit a pome, one to five-celled, seldom spuriously 10-celled; the endocarpium either cartilaginous, spongy, or bony. Seeds ascending, solitary. Albumen none; embryo erect, with flat cotyledons, and a short conical radicle.—*Trees or shrubs. Leaves alternate, stipulate, simple, or compound. Flowers in terminal cymes, white or pink.*

1. Cratægus. *Linn.* Hawthorn.

Calyx segments superior, acute. *Petals* roundish. *Styles* 1—5. *Fruit* oval or round, concealing the upper end of the cells which are bony. *Lindl.*—Name from κρατος, *strength*, in allusion to the extreme hardness of the wood.

Icosandria. Monogynia.

1. C. *Oxyacantha*, Linn. *Hawthorn or White-thorn.* Leaves glabrous, cut into three or five deeply serrated segments, cuneate at the base; flowers corymbose; style one or two. *Br. Fl.* 1. *p.* 221.—*Mespilus Oxyacantha, Gert.*—*E. Fl. v.* ii. *p.* 359. *E. Bot. t.* 2504.

Woods and hedges. *Fl.* May, June. ♄.—The hawthorn tree, when in bloom, is deservedly a general favourite. The pink-flowered variety is a very ornamental plant, which is also much esteemed, and the new scarlet thorn, with larger flowers of a deep red, still more so. This plant also varies in the colour of its fruit, which is generally red, being sometimes yellow. It is well known as a useful plant for hedges, and vast numbers of plants are sold annually by the nurserymen, who raise them from the *haws*. It may also be propagated from pieces of the roots.

2. Pyrus. *Linn.* Pear, Apple, and Service.

Calyx 5-toothed. *Petals* roundish, spreading. *Styles* 2, 3—or 5. *Fruit* fleshy with 5 distinct cells. *Endocarpium* cartilaginous. *Seeds* 2 in each cell. *Testa* cartilaginous.—Trees *with serrated, undivided, or pinnated* leaves, and *cymose* flowers. *Bracteæ* deciduous.—Name derived from the Celtic *peren*, a *pear*. In Greek απιος, from *api* Celtic; whence *apple* in Engl., *apfel*, Germ., *abhal pradhaugh* in Gaelic.

Icosandria. Monogynia.

* *Leaves simple.*

1. P. *communis*, Linn. *Wild Pear-tree.* Leaves simple, ovate, serrated; flowerstalks corymbose; fruit turbinate. *Br. Fl.* 1. *p.* 222. *E. Fl. v.* ii. *p.* 361. *E. Bot. t.* 1784.

On rocks below Fermoy; *Mr. J. Drummond. Fl.* April, May. ♄.—The origin of our *garden pear.*

2. P. *Malus*, Linn. *Crab-tree.* Leaves ovate, acute, serrated; flowers in a sessile umbel; styles combined below; fruit globose. *Br. Fl.* 1. *p.* 222. *E. Fl. v.* ii. *p.* 362. *E. Bot. t.* 169.

Woods and hedges. *Fl.* May. ♄.—A small tree with spreading branches, the origin of our *apple*, of which we have now so many fine varieties.

3. P. *Aria*, Smith. *White Beam-tree.* Leaves ovate, cut and serrated, white and downy beneath; flowers corymbose. *Br. Fl.* 1. *p.* 222. *E. Fl. v.* ii. *p.* 367. *E. Bot. t.* 1858.—*Cratægus Aria, Linn.*

Mountainous woods and cliffs, chiefly in limestone countries. Plentiful in several places in Cunnamara, and about the Lakes of Killarney, in crevices of limestone rocks. *Fl.* June. ♄.—*Leaves* often more or less cut at the margin. *Fruit* red.

* * *Leaves pinnate.*

4. P. *aucuparia*, Gærtn. *Quicken-tree* or *Mountain Ash.* Leaves pinnate; leaflets uniform, serrated, smooth; flowers corymbose; styles about three; fruit globular. *Br. Fl.* 1. *p.* 222. *E. Fl. v.* ii. *p.* 364.—*Sorbus aucuparia, E. Bot. t.* 337.

Woods and rocks in mountainous situations, frequent. *Fl.* May, June. ♄.—A handsome tree in plantations and hedge-rows, especially when the fruit is ripe. *Corymbs* many-flowered. *Flowers* white. *Pomes* resembling berries, scarlet.

Ord. 29. GROSSULACEÆ. *D C.* Currant Family.

Tube of the calyx adnate with the ovary, its limb 4—5-parted, regular, often coloured. Petals 4 or 5, inserted into the mouth of the calyx, and alternating with its lobes, equal. Stamens 4—5, inserted alternately with the petals. Ovary 1-celled, with 2 opposite, parietal placentas: ovules numerous: style single, 2—3—4-cleft. Fruit baccate, subglobose, crowned with the withered flower. Seeds many, suspended among the pulp by filiform stalks. Testa gelatinous, adhering firmly to the albumen, which is horny. Embryo minute, excentrical, with the radicle next the hilum.—*Shrubs of temperate climates, often spinous. Leaves alternate, lobed, with a plaited vernation. Flowers greenish-white, yellow or red, solitary or in racemes.*

1. Ribes. *Linn.* Currant and Gooseberry.

Calyx 5-cleft, bearing the *petals* and the *stamens*. *Style* divided. *Berry* 1-celled, many-seeded.—Name, *Ribes*, a word applied by the Arabic Physicians to a species of *Rhubarb, Rheum Ribes.* Our older Botanists believed that it was our *Gooseberry;* and hence Bauhin called that plant *Ribes acidum.*

Pentandria. Monogynia.

* *Without prickles.*

1. R. *rubrum*, Linn. *Common Currant.* No prickles; clusters smooth, pendulous; flowers but slightly concave; petals inversely heart-shaped. *Br. Fl.* 1. *p.* 107. *E. Fl. v.* i. *p.* 330. *E. Bot. t.* 1289.

In several places in the County of Cork, in a naturalized state; *Mr. J. Drummond. Fl.* May. ♄.—*Leaves* five-lobed, doubly serrated, on longish stalks. There is a small leaf or bractea at the end of each pedicel. *Flowers* greenish. *Fruit* crowned, as in all the genus, with the withered flower.

2. R. *nigrum*, Linn. *Black Currant.* No prickles; clusters hairy, pendulous, with a separate flower-stalk at the base of each; flowers oblong. *Br. Fl.* 1. *p.* 108. *E. Fl. v.* i. *p.* 322. *E. Bot. t.* 1291.

Moory ground near Castleconnel, County of Limerick, where the seed had probably been carried by birds. In the County of Cork, in a naturalized state; *Mr. J. Drummond. Fl.* May. ♄.

* * *Branches prickly.*

3. R. *Grossularia*, Linn. *Common Gooseberry.* Prickles one, two, or three, under each bud; branches otherwise smooth, spreading; stalks single-flowered; bracteas close together; segments of the calyx reflexed, shorter than the tube. *Br. Fl.* 1. *p.* 107. *E. Fl. v.* i. *p.* 333. *E. Bot. t.* 2057.—*R. Uva crispa, Linn.*

Rocks near the Lee, about Inchegella, County of Cork, in a naturalized state; *Mr. J. Drummond. Fl.* April, May. ♄.—All the numerous varieties of the gooseberry, with hairy and smooth *fruit*, appear to belong to the same species.

ORD. 30. ONAGRARIÆ. *Juss.* Evening-Primrose Family.

Tube of the calyx wholly, or in part only, adnate with the ovary; limb 2—5-generally 4-lobed, with a valvate æstivation. Petals of the same number as the lobes of the calyx, and alternate with them, generally regular; inserted on the mouth of the tube, with a twisted æstivation; rarely none. Stamens definite: filaments distinct, filiform; anthers oblong or ovate. Ovary with many cells, often crowned with a disk: style filiform; stigma capitate or lobed. Fruit a capsule, berry or drupe, 2— or 4-celled. Seeds many (rarely solitary) in each cell, fixed to the central angle, without albumen. Embryo straight: radicle long, roundish: cotyledons short.—*Herbs or shrubs, with simple, alternate or opposite, entire or toothed leaves. Flowers axillary or in terminal racemes.*

1. EPILOBIUM. *Linn.* Willow-herb.

Calyx superior, 4-parted, segments free, deciduous. *Petals* 4. *Capsule* elongated, 4-sided, 4-celled, 4-valved, many-seeded. *Seeds* with a tuft of hairs at one extremity.—Name from επι, *upon*, and λοβος, *a pod:* the flower being placed upon the top of the elongated seed-vessel. *Octandria. Monogynia.*

* *Flowers irregular. Stamens bent down.*

1. E. *angustifolium*, Linn. *Rose-bay Willow-herb, Persian or French Willow.* Leaves scattered, linear-lanceolate, veiny, smooth; petals unequal; stamens declining. *Br. Fl.* 1. *p.* 179. *E. Fl. v.* ii. *p.* 212. *E. Bot. t.* 1947.

Moist banks and rocky places, rather of rare occurrence in Ireland. At the Scalp, near Enniskerry, among loose rocks. Cavehill, near Belfast; *Mr. Templeton.* County of Derry; *Mr. D. Moore. Fl.* July. ♃.—*Stems* three to six feet high, smooth, reddish. *Flowers* large, purple, (rarely white,) in long upright clusters.

* * *Flowers regular. Stamens erect. Stigmas 4-cleft.*

2. E. *hirsutum*, Linn. *Great hairy Willow-herb.* Leaves half clasping the stem, ovato-lanceolate, hairy; stem copiously branched; root creeping. *Br. Fl.* 1. *p.* 179. *E. Fl. v.* ii. *p.* 213. *E. Bot. t.* 838.

In watery places, ditches and margins of rivers, common. *Fl.* July. ♃.—Almost equal in size to the last. *Root* perennial, creeping. *Flowers* corymbose, large, of a delicate pink. A variety with white flowers has been noticed by Mr. Hodgens growing about Dunganstown, County of Wicklow.

3. E. *parviflorum*, Schreb. *Small-flowered hairy Willow-herb.* Leaves sessile, lanceolate, downy; stem nearly simple, woody; root fibrous. *Br. Fl.* 1. *p.* 179. *E. Fl. v.* ii. *p.* 214. *E. Bot. t.* 795.

Marshes, banks of lakes and rivers, frequent. *Fl.* July. ♃.—*Stem* from one to two feet high, simple or slightly branched at top. *Leaves* downy. *Flowers* light purple.

4. E. *montanum*, Linn. *Broad smooth-leaved Willow-herb.* Leaves stalked, ovate, toothed; stem round; stigma in four deep segments. *Br. Fl.* 1. *p.* 179. *E. Fl.* ii. *p.* 214. *E. Bot. t.* 777.

Dry shady banks, walls, roofs of cottages, &c. frequent. *Fl.* July. ♃.—*Stem* one foot and a half to two feet high. *Flowers* light purple, few, in a terminal leafy crymbose cluster, rather smaller than the last.

* * * *Flowers regular. Stamens erect. Stigma undivided.*

5. E. *tetragonum*, Linn. *Square-stalked Willow-herb.* Leaves lanceolate, sessile, minutely toothed; stem erect, unequally quadrangular; stigma undivided. *Br. Fl.* 1. *p.* 180. *E. Fl. v.* ii. *p.* 215. *E. Bot. t.* 1948.

Sides of ditches and watery places, common. *Fl.* July. ♃.—*Stem* about a foot high, almost quite smooth. *Flowers* few, pale purple, with cloven *petals.*

6. E. *palustre*, Linn. *Narrow-leaved Marsh Willow-herb.*

Leaves sessile, linear-lanceolate, slightly toothed; stem round; stigmas undivided. *Br. Fl.* 1. *p.* 180. *E. Fl. v.* ii. *p.* 216. *E. Bot. t.* 346.

Boggy places and by the sides of ditches. *Fl.* July. ♃.—About a foot high. *Flowers* small. *Petals* inversely heart-shaped, pale-purple, with dark streaks. *Stigma* linear.

ORD. 31. CIRCÆACEÆ. *Juss.* Enchanter's Nightshade Family.

Calyx superior, deciduous, tubular, with a 2-parted limb. Petals 2, alternate with the lobes of the calyx. Stamens 2, alternate with the petals, inserted into the calyx. Disk large, cup-shaped, filling up the whole of the tube of the calyx, and projecting beyond it. Ovarium 2-celled, with an erect ovulum in each cell; style simple, arising out of the disk; stigma emarginate. Fruit 2-celled, 2-valved, 2-seeded. Seeds solitary, erect; albumen none; embryo erect; radicle short, inferior.—*Herbaceous plants. Leaves opposite, toothed, stalked. Flowers in terminal and lateral racemes, covered with uncinate hairs.*

Obs. This order differs from Onagrariæ in its large fleshy disk which fills up the tube of the calyx, in its solitary erect ovula, and in the binary division of the flower; it is connected with that order through Lopezia, with which it cannot however be absolutely associated, and bears about the same relation to Onagrariæ as is borne by Halorageæ. *Lindley.*

1. CIRCÆA. *Linn.* Enchanter's Nightshade.

Calyx of 2 sepals, but united into a short tube at the base. *Corolla* of 2 petals. *Capsules* 2-celled. *Cells* 1-seeded.—Name from the Enchantress *Circe*, either from the prettiness of its flowers, or as some say, from growing in damp shady places, where plants used for incantations are found.

Diandria. Monogynia.

1. C. *lutetiana*, Linn. *Common Enchanter's Nightshade.* Stem erect; leaves ovate, slightly toothed, opaque and downy. *Br. Fl.* 1. *p.* 11. *E. Fl. v.* i. *p.* 15. *E. Bot. t.* 1056.

Woods and coppices in shady situations, frequent. Plentiful in the Dargle-woods, and at Powerscourt, County of Wicklow. *Fl.* June, July. ♃.—*Racemes* as well as the *stem*, more or less branched. *Flowers* white or rose-colour.

2. C. *alpina*, Linn. *Alpine Enchanter's Nightshade.* Stem ascending, nearly glabrous; leaves cordate, toothed, shining, as long as the petioles. *Br. Fl.* 1. *p.* 11. *E. Fl. v.* i. *p.* 16. *E. Bot. t.* 1057.

β. major, larger and more pubescent. *E. Fl. v.* i. *p.* 16.—*C. intermedia, Ehrh.*

Muff Glen, Faughan Vale, County of Derry; *Mr. D. Moore.* In Muskerry, and near Skibbereen, County of Cork; *Mr. J. Drummond.* β. Collin Glen near Belfast.—*Fl.* July, Aug. ♃.—Resembling the last, but much smaller; the leaves are decidedly cordate, and the petioles longer. The var. β. is larger and more pubescent; but in the cordate leaves, and other characters, it better accords with this species than with *C. lutetiana.*

ORD. 32. HALORAGEÆ. *Br.* Water-Milfoil Family.

Tube of the calyx adherent with the ovary for its whole length; the limb divided or none. Petals inserted upon the top of the calyx, alternate with its lobes and equal to them in number, or wanting. Stamens inserted in the same place, double the number of the petals, equal to them or fewer. Ovary adherent with the calyx, often many-celled; styles none; stigmas equal in number to the cells, papulose or pencil-formed. Fruit 1, or many-celled, indehiscent, membranaceous or bony, the cells one-seeded. Seeds pendulous in the cells, with a fleshy albumen. Embryo central, straight: radicle superior, rounded, elongated: cotyledons short.—*Herbaceous or somewhat shrubby often aquatic plants, with alternate, opposite or whorled leaves. Flowers axillary or arranged in terminal spikes, sometimes monœcious or diœcious.*

1. MYRIOPHYLLUM. *Linn.* Water-Milfoil.

Barren fl. Calyx inferior, of 4 sepals. *Petals* 4. *Stamens* 8. *Fertile fl. Calyx* of 4 sepals. *Petals* 4. *Stigmas* 4, sessile. *Nuts* 4, sessile, subglobose, 1-seeded.—Name; *μυριος a myrid,* and *φυλλον*, a *leaf,* from its numerous leaves.

Monœcia. Polyandria.

1. M. *spicatum,* Linn. *Spiked Water-Milfoil.* Sterile flowers forming an interrupted leafless spike. *Br. Fl.* 1. *p.* 406. *E. Fl. v.* iv. *p.* 143. *E. Bot. t.* 83.

Ditches and stagnant waters, frequent. *Fl.* July, Aug. ♃.—*Stems* slender, much branched. *Leaves* four in a whorl, finely pectinated, and always submerged. *Spikes* slender, 3—5 inches long.

2. M. *verticillatum,* Linn. *Whorled Water-Milfoil.* Flowers all axillary. *Br. Fl.* 1. *p.* 406. *E. Fl. v.* iv. *p.* 143. *E. Bot. t.* 218.

In ponds and ditches, much less common than the former. Plentiful about Limerick; *Mr. W. H. Harvey,* who sent me specimens. Ballyphehane-bog, near Cork; *Mr. J. Drummond. Fl.* July; ♃.—*Stems* covered to the top with leaves; flowering part rising above the water. *Leaves* five in a whorl, pinnatifid; whorls of flowers in the axils of the leaves.

2. HIPPURIS. *Linn.* Mare's-tail.

Perianth single, superior, forming a very indistinct rim to the germen. *Fruit*, a small one-seeded *Nut*.—Name from ιππος, *a horse*, and ουρα, *a tail.*   *Monandria. Monogynia.*

1. H. *vulgaris*, Linn. *Common Mare's-tail.* Leaves 6—8 or 10 in a whorl, linear. *Br. Fl.* 1. *p.* 2. *E. Fl. v.* i. *p.* 4. *E. Bot. t.* 763.

Ditches, sides of lakes and borders of slow streams, frequent. *Fl.* May, June. ♃.—*Root* creeping. *Stem* a foot or more above the water, round, juicy, polished, reddish, with many whorls of spreading, linear, entire, smooth, single-ribbed *leaves*. *Flowers* small. *Anther* red before it bursts. The lower *leaves*, deep under water, are long, thick-set, pellucid, and pale; the herb in winter bearing no other. In this state it is noticed by Dillenius as a remarkable variety. *Smith.*

ORD. 33. UMBELLIFERÆ. *Juss.* Umbelliferous Family.

Calyx superior, either entire, or 5-toothed. *Petals* 5, inserted on the outside of a fleshy disk; usually inflexed at the point; æstivation generally valvate, very rarely imbricate. Stamens 5, alternate with the petals, incurved in æstivation. Ovarium inferior, 2-celled, with solitary pendulous ovula; crowned by a double fleshy disk; styles 2, distinct; stigmata simple. Fruit consisting of 2 carpella, separable from a common axis, to which they adhere by their face (*the commissure*); each carpellum traversed by elevated ridges, of which five are primary, and four alternating with them, secondary; the ridges are separated by channels, below which are often placed, in the substance of the testa, certain linear receptacles of coloured oily matter, called vittæ. Seed pendulous, usually adhering inseparably to the pericarpium, rarely loose; embryo minute, at the base of abundant horny albumen; radicle pointing to the hilum.—*Herbs. Stem often fistulose and furrowed. Leaves alternate, generally compound and embracing the stem with their sheathing bases. Flowers umbellate, usually involucrate.*

A most extensive and extremely important Natural Order, including many poisonous plants, these being chiefly such as grow in watery places, and many esculent and aromatic ones often yielding gum-resins. The fruit of this Family is never injurious: those of Coriander, Anise and Dill, being agreeable aromatics.

A. *Umbels perfect. Carpels with many ridges, namely,* 5 *primary, and* 4 *secondary ones.*

(I. DAUCUS TRIBE.)

1. DAUCUS. *Linn.* Carrot.

Calyx of 5 teeth. *Petals* obcordate, point inflexed; the outer often radiant, and deeply bifid. *Fruit* dorsally compressed. *Carpels* with five primary *ridges,* filiform and bristly, of which the three intermediate ones are dorsal, the two lateral ones on the inner face; the four *secondary* ridges equal, more prominent, with one row of prickles, which are slightly connected at the base. *Interstices* under the secondary ridges, with single vittæ. *Seed* plane in front.—Universal *and* partial involucre *many-leaved, the former often primary.*—Name, the *δαυκος,* of Dioscorides. *Pentandria. Digynia.*

1. D. *Carota,* Linn. *Wild Carrot.* Bristles of the seeds slender; leaves tripinnate; leaflets pinnatifid; segments linear-lanceolate, acute; umbels with a solitary, coloured abortive flower in the centre, when in seed concave. *Br. Fl.* 1. *p.* 114. *E. Fl. v.* ii. *p.* 39. *E. Bot. t.* 1174.

Pastures and borders of fields, very common. *Fl.* July. ♂.—This is the origin of our garden Carrot, of which there are several varieties cultivated.

2. D. *maritimus,* With. *Sea-side Carrot.* Bristles of the seed flattened; leaves tripinnate; leaflets pinnatifid, lanceolate, fleshy; segments rounded; umbels destitute of abortive florets, convex when in seed. *Br. Fl.* 1. *p.* 114. *E. Fl. v.* ii. *p.* 40. *E. Bot. t.* 2560.—*D. Carota, γ. Fl. Brit. p.* 300.

Sea coast near Baldoyle and Portmarnock. *Fl.* July, Aug. ♃.—Smaller than the last, with broader and more fleshy *leaves,* but, perhaps, not permanently distinct.

(II. Caucalis Tribe.)

2. Torilis. *Adans.* Hedge-Parsley.

Calyx of 5 teeth. *Petals* obcordate, point inflexed: outer ones larger and bifid. *Fruit* contracted at the side. *Carpels* with five primary bristly *ridges,* of which the three intermediate ones are dorsal, the two latter ones on the inner face, the secondary ridges obliterated by the numerous prickles which fill the interstices. *Interstices* with single *vittæ* beneath the prickles. *Seed* with the margin involute. Involucre *various; partial of many leaves.*—Name of doubtful derivation; perhaps, as Smith suggests, from *τορευω,* to *carve* or *emboss,* in allusion to the fruit. *Pentandria. Digynia.*

1. T. *Anthriscus,* Gærtn. *Upright Hedge-Parsley.* Stem erect, branched; leaves bipinnate; leaflets lanceolate, inciso-serrate, attenuate; umbels terminal; involucres of many small subulate leaves. *Br. Fl.* 1. *p.* 115. *E. Fl. v.* ii. *p.* 48.—*Caucalis Anthriscus, Huds.*—*E. Bot. t.* 987.

Hedges and waste places, common. *Fl.* July. ⊙.—*Stems* two to three feet high. *Fruit* densely clothed with incurved bristles.

2. T. *infesta,* Spr. *Spreading Hedge-Parsley.* Leaves bipin-

nate; leaflets ovate, inciso-pinnatifid, serrated; general involucre none, partial of few subulate leaves. *Br. Fl.* 1. *p.* 115. *E. Fl.* *v.* ii. *p.* 43.—*Caucalis infesta, Curt.*—*E. Bot. t.* 1314.

Fields, way-sides, &c. less frequent than the last. Near Cork; *Rev. Doctor Hincks.* *Fl.* July. ⊙.

3. T. *nodosa*, Gærtn. *Knotted Hedge-Parsley.* Stem prostrate; umbels lateral, simple, subsessile; fruit sometimes warted. *Br. Fl.* 1 *p.* 116. *E. Fl. v.* ii *p.* 88.—*Caucalis nodosa, E. Bot. t.* 199.—*Tordylium nodosum, Linn.*

Ditch banks, way-sides and waste places, frequent. *Fl.* May, June. ⊙.—*Leaves* bipinnate; *leaflets* ovate, pinnatifid, segments linear, acute, short. *Umbels* capitate, opposite the base of a leaf. *Flowers* reddish. *External fruits* of the umbel most bristly, *inner* ones partially tubercled.

B. *Umbels perfect. Carpels with few ridges: namely, 5 primary ones, secondary ones 0, or with primary ones even obliterated, and only apparent at the extremity.*

(III. SELINUM TRIBE.)

3. HERACLEUM. *Linn.* Cow-Parsnep.

Calyx of 5 teeth. *Petals* obcordate, point inflexed, outer ones often radiant. *Fruit* remarkably and dorsally compressed, with a broad and plane border. *Carpels* with very slender *ridges*, three of them dorsal, equidistant, two lateral ones remote, contiguous with the border. *Interstices* with single (evident) club-shaped *vittæ*. *Seed* flat.—Universal involucre *deciduous*; partial *of many leaves.*—Named after Hercules. who is said to have brought this, or some allied plant, into use. *Pentandria. Digynia.*

1. H. *Sphondylium*, Linn. *Common Cow-Parsnep.* Leaves pinnated, rough, hairy; leaflets pinnatifid, cut, sinuated, upper one somewhat palmated; petals unequal; fruit glabrous. *Br. Fl.* 1. *p.* 117. *E. Fl. v.* ii. *p.* 102. *E. Bot. t.* 939.

Hedges, pastures, and bushy places, frequent. *Fl.* July. ♂.—A coarse rank weed, four to five feet high. *Leaves* largely serrated, sheaths inflated.

4. PASTINACA. *Linn.* Parsnep.

Calyx nearly obsolete. *Petals* roundish, entire, involute with a sharp point. *Fruit* much compressed dorsally, with a broad flat border. *Carpels* with very slender *ridges*, the three intermediate ones equidistant, the two lateral ones remote, contiguous to the border. *Interstices* with single evident *vittæ*. *Seed* flat.—Universal *and* partial involucres *of few leaves.*—Different from *Heracleum*, in the entire, involute petals, and

filiform, not clubbed, vittæ; in the remote lateral ridges from all the rest of this Tribe; and from *Peucedanum* also by the involute petals.—Name derived from *pastus, food.*
Pentandria. Digynia.

1. P. *sativa*, Linn. *Wild Parsnep.* Leaves pinnate, downy beneath; leaflets ovate, cut and serrated, ultimate one 3-lobed. *Br. Fl.* 1. *p.* 118. *E. Fl. v.* ii. *p.* 101. *E. Bot. t.* 556.

Dry pastures and borders of fields. Fields near Finglass, and lands of Beldrummond, near the Man-of-War. Town-land of Margymonaghan, Magilligan, abundant; *Mr. D. Moore.* *Fl.* July. ♂.—*Root* fusiform. The origin of our garden *Parsnep.* *Leaves* generally shining. *Petals* very convex, yellow, involute.

5. PEUCEDANUM. *Linn.* Hog's Fennel.

Calyx of 5 teeth, or obsolete. *Petals* obovate or obcordate, point inflexed. *Fruit* much flattened dorsally, with a broad thin margin. *Carpels* with the *ridges* nearly equidistant, the three intermediate ones filiform, the two lateral ones more obsolete, contiguous to or combined with the margin. *Seed* flat on its inner face. *Interstices* with single *vittæ.*—Universal involucre *various*; partial *of many leaves.*—Name from πευκη, a *Pine tree;* and δαυος, *dwarf*, on account of a resinous substance, said to be extracted from some of the species.
Pentandria. Digynia.

1. P. *Ostruthium*, Koch. *Broad-leaved Hog's Fennel* or *Master-Wort.* Leaves biternate; leaflets broadly ovate, lobed, inciso-serrate, unequal at the base; sheaths very large; fruit with a very broad margin; universal involucre none. *Lindl. Syn. p.* 116. *Br. Fl.* 1. *p.* 119.—*Imperatoria Ostruthium, Linn.*—*E. Fl. v.* ii. *p.* 78. *E. Bot. t.* 1380.

Old hedges on the town-land of Ballydolaghan, County of Down, to all appearance perfectly wild; *Mr. Campbell.* *Fl.* June. ♃.—*Flowers* white. *Partial involucres* several, subulate.

(IV. ANGELICA TRIBE.)

6. ANGELICA. *Linn.* Angelica.

Calyx obsolete. *Petals* elliptical-lanceolate, entire, and inflexed at the point. *Fruit* subcompressed, 2-winged. *Carpels* with three elevated dorsal *ridges*, the lateral ones spreading into the broad wings of the fruit. *Vittæ* various.—*Universal* involucre scarcely any. (*Archangelica* and *Angelica*, Hoffm.)—Name, *Angelic*, from its cordial and medicinal properties.
Pentandria. Digynia.

1. A. *sylvestris*, Linn. *Wild Angelica.* Leaflets equal, ovate, serrated at the base, somewhat lobed; fruit with the interstices

of the ridges having single vittæ. *Br. Fl.* 1. *p.* 119. *E. Fl. v.* ii. *p.* 81. *E. Bot. t.* 1128.

Moist woods and marshy places, especially near rivers, frequent. *Fl.* July. ♃.—*Plant* two to three feet high. *Stem* purplish, pubescent above, as well as the *umbels.*—Inferior in quality to the common garden Angelica, which has not been observed in a wild state in Ireland.

(V. SESELI TRIBE.)

7 CRITHMUM. *Linn.* Samphire.

Calyx obsolete. *Petals* elliptical, entire, involute. *Fruit* subterete. *Carpels* (spongy) with five elevated sharp, somewhat winged *ridges,* of which the lateral ones are a little broader and marginal. *Seed* subterete, free, abundantly marked with *vittæ.*—Universal *and* partial involucres *of many leaves.*—Name from *κριθη, barley;* from a fancied resemblance between the fruit of this plant and a grain of Barley.
Pentandria. Digynia.

1. C. *maritimum,* Linn. *Sea Samphire.* Leaflets lanceolate, fleshy; leaves of the involucre ovate. *Br. Fl.* 1. *p.* 120. *E. Fl. v.* ii. *p.* 74. *E. Bot. t.* 819.

Rocks by the sea side. Plentiful on Killiney Hill, Howth, Lambay and Ireland's Eye. On the southern coast; *Mr. J. Drummond. Fl.* Aug. ♃.—Whole plant very succulent, pale green. *Leaves* bi-triternate. *Samphire* makes a warm aromatic pickle, and is sold for this purpose in Dublin and elsewhere.

8. LIGUSTICUM. *Linn.* Lovage.

Calyx of five teeth, or obsolete. *Petals* obcordate with an inflexed point. *Fruit* subterete, or slightly and laterally compressed. *Carpels* with five sharp, somewhat winged equal *ridges,* of which the lateral ones are marginal. *Interstices* with many *vittæ. Seed* subsemiterete.—Universal involucre *various:* partial *of many leaves.*—Name from *Liguria* where the old *Ligusticum Levisticum* abounds. Hence, too our word *Lovage.*
Pentandria. Digynia.

1. L. *scoticum,* Linn. *Scottish Lovage.* Leaves twice ternate; leaflets subrhomboid, dentato-serrate, not glossy; general involucre of about six narrow leaves; calyx 5-toothed. *Br. Fl.* 1. *p.* 121. *E. Fl. v.* ii. *p.* 82. *E. Bot. t.* 1207.

Rocky sea coasts. On the rocks about Donaghadee, and the Copland Isles; *Mr. Templeton.* County of Derry; *Mr. D. Moore. Fl.* July. ♃.—*Root* fusiform, acrid but aromatic. *Stem* nearly simple. *Leaves* mostly radical; *leaflets* large, deeply serrated, rather fleshy.—The true *Lovage,* common in gardens, *Ligusticum Levisticum* (now, the genus *Levisticum*) has truly winged *ridges* to the fruit, and fewer *vittæ;* but in other respects is nearly allied to this. It may, however, at once be known by its larger size, branched *stems*, and more compound shining *leaves*. I observed this last on a ditch bank between Ballybeg and Kells, County of Meath, in a naturalized state, but it has evidently been the outcast of a garden.

9. SILAUS. Besser. Pepper-Saxifrage.

Calyx obsolete. *Petals* obovate, submarginate with an inflexed point, appendaged, or sessile and truncated at the base. *Fruit* subterete. *Carpels* with five sharp, somewhat winged equal *ridges*, of which the lateral ones are at the margin. *Interstices* with many *vittæ*. *Seed* subsemiterete.—Universal involucre *of few leaves, or none;* partial *of many leaves*.—Scarcely different from *Ligusticum*, except in its yellowish, nearly entire, (not acutely emarginate) petals, truncated and sessile at the base.—Name of dubious origin. It was applied by Pliny to some herb. *Pentandria. Digynia.*

1. S. *pratensis*, Besser. *Meadow Pepper-Saxifrage.* Leaves tripinnate; leaflets linear-lanceolate, opposite; general involucre of one or two leaves. *Br. Fl.* 1. *p.* 121.—*Peucedanum Silaus, Linn.*—*E. Bot. t.* 2142.—*Cnidium Silaus, Spreng.*—*E. Fl. v.* ii. *p.* 91.

Pastures and meadows, rare in Ireland. Gravelly bank by the side of the Foyle river, County of Derry; *Mr. D. Moore*. *Fl.* July—Sept. ♃.—One to two feet high. *Partial umbels* small, distant. *Flowers* pale yellow.—Whole plant fetid when bruised, apparently refused by cattle. *Hook.*

10. ÆTHUSA. *Linn.* Fool's Parsley.

Calyx obsolete. *Petals* obcordate, with an inflexed point. *Fruit* ovato-globose. *Carpels* with five elevated, thick, acutely carinated *ridges*, the lateral ones marginal and a little broader, bordered by a somewhat winged keel. *Interstices* with single *vittæ*. *Seed* semiglobose.—Universal involucre 0, partial *of 3 unilateral drooping leaves*.—Name from *αἴθω*, *to burn*, on account of its acrid quality. *Pentandria. Digynia.*

1. Æ. *Cynapium*, Linn. *Common Fool's Parsley.* Leaves uniform; leaflets wedge-shaped, decurrent with lanceolate segments. *Br. Fl.* 1. *p.* 122. *E. Fl. v.* ii. *p.* 64. *E. Bot. t.* 1192.

Fields and gardens. *Fl.* July, Aug. ⊙.—One foot high. *Stem* striated, branched, very leafy. *Leaves* glabrous, doubly, or the lower ones trebly, pinnate. Segments ovato-lanceolate, variously cut. *Umbels* terminal, on long stalks. *Umbellules* small, distant. *Universal* involucre none, *partial involucres* of three, long, pendent leaves, all on one side, by which it is readily known from other *umbelliferous plants*. The smell is nauseous, and it is esteemed very unwholesome.

11. Fœniculum. *Hoffm.* Fennel.

Calyx obsolete. *Petals* roundish, involute, narrower apex obtuse. *Fruit* subterete. *Carpels* with five prominent obtuse keeled *ridges*, of which the lateral ones are marginal and a little broader. *Interstices* with single *vittæ*. Seeds subsemiterete.—Universal *and* partial *involucre* 0.—Name from *fœnum, hay*, its smell being compared to that of hay.
Pentandria. Digynia.

1. F. *vulgare*, Gærtn. *Common Fennel.* Leaves biternate; leaflets linear, filiform, pinnatifid, segments awl-shaped. *Br. Fl.* 1. *p.* 122. —*Anethum Fœniculum, Linn.*—*E. Bot. t.* 1208.—*Meum Fœniculum, Spreng. E. Fl. v.* ii. *p.* 85.

Gravelly banks near towns and villages. Plentiful by the side of the new road between Bray and the Dargle, also near Clonskeagh and Chapelizod. At Carrickadrohid Castle, County of Cork; *Mr. J. Drummond. Fl.* July, Aug. ♃.—*Stems* three to four feet high, fistulose. *Leaves* much divided with very slender segments. *Flowers* dark yellow, at the base of the styles very glutinous. This is the true *Fennel* of the gardens, which is frequently used for garnishing salmon.

12. Œnanthe. *Linn.* Water-Dropwort.

Calyx of five teeth. *Petals* obcordate with an inflexed point. *Fruit* subterete, crowned with the straight styles. *Carpels* with five, blunt convex *ridges*, of which the lateral ones are marginal and a little broader. *Interstices* with single *vittæ*. *Seed* tereti-convex; *axis* none.—Universal involucre *various*, partial *of many leaves*. Flowers of the ray on long pedicels, sterile; those of the disk sessile or shortly pedicellate, fertile. —Name from *οινη, a vine*, and *ανθος, a flower*, alluding to the vinous smell of the blossoms. *Pentandria. Digynia.*

1. Œ. *fistulosa*, Linn. *Common Water-Dropwort.* Root stoloniferous; stem-leaves pinnated, their main stalk as well as the stem cylindrical, tubular; umbels of very few rays. *Br. Fl.* 1. *p.* 123. *E. Fl. v.* ii. *p.* 68. *E. Bot. t.* 363.

Ditches and rivulets, common. *Fl.* July, Aug. ♃.—*Plant* two to three feet high, remarkably tubular and fistulose. *Stem-leaves* distant, and the *leaflets*, which are few and small, are confined to the upper extremity of the leaves. *Umbels* small. *Gen. involucre* often wanting.

2. Œ. *pimpinelloides*, Linn. *Parsley Water-Dropwort.* Leaflets of the radical leaves wedge-shaped, cloven, those of the stem linear, entire, very long; general involucre of several linear leaves. *Br. Fl.* 1. *p.* 123. *E. Fl. v* ii. *p.* 69. *E. Bot. t.* 447.

Salt marshes, not unfrequent. West side of Lambay; *Mr. Underwood.* Near Baldoyle, Portmarnock Strand, and by the lake near

Sandymount. Banks of the Lagan, near Belfast: *Mr. Templeton.* Salt marsh near Castletown, County of Cork; *Mr. J. Drummond. Fl.* July. ♃.—Two feet or more high. *Umbellules* thickly crowned, forming almost sphærical heads when in fruit.—This was inserted, by mistake, in my catalogue, as *Œ. peucedanifolia,* to which it is strongly allied. The latter has not yet been found in Ireland.

3. Œ. *crocata,* Linn. *Hemlock Water-Dropwort.* Leaves tri-quadripinnate; leaflets cuneato-ovate, cut and serrated, those of the upper leaves narrower; general involucre of few leaves. *Br. Fl* 1. *p.* 123. *E. Fl. v.* ii. *p.* 71. *E. Bot. t.* 2313.

Watery places, by ditches and rivers, frequent. *Fl.* July. ♃.—*Root* consisting of many fleshy knobs or tubers, abounding with an orange coloured, fetid, very poisonous juice, such as exudes less plentifully from all parts of the herb when wounded. *Plant* three to five feet high: different from all the preceding in the great breadth of its *leaflets,* and large, much ramified *stems.*

4. Œ. *Phellandrium,* Spreng. *Fine-leaved Water-Dropwort.* Leaves decompound, nearly uniform with narrow oblong, short, divaricated segments; peduncles lateral; general involucre scarcely any. *Br. Fl.* 1. *p* 124. *E. Fl. v.* ii. *p.* 71.—*Phellandrium aquaticum, Linn.—E. Bot. t.* 648.

Ditches and pools, by the verge of the large pond at Woodlands, very plentiful in ditches and drains near the lake at Farnham, and elsewhere in the County of Cavan. *Fl.* July. ♃.—*Stem* two to three feet high, very thick below, much branched, *branches* spreading. *Umbels* rather small; mostly perfect in every *flower.*

(VI. AMMI TRIBE.)

13. SIUM. *Linn.* Water-Parsnep.

Calyx of five teeth, or obsolete. *Petals* obcordate, with an inflexed point, or entire and ovate. *Fruit* laterally compressed, or contracted and subdidymous, crowned with the reflexed styles with their depressed bases. *Carpels* with five equal, filiform, rather obtuse *ridges,* of which the lateral ones are marginal. *Interstices* with one or many *vittæ. Seed* subterete. —Universal involucre *various,* partial *of many leaves. (Sium and Helosciadium, Koch.)*—Name derived, according to Theis, from the Celtic word *siw,* water. *Pentandria. Digynia.*

1. S. *latifolium,* Linn. *Broad-leaved Water-Parsnep.* Stems erect, leaves pinnated; leaflets oblongo-lanceolate, equally serrated; umbels terminal. *Br. Fl.* 1. *p.* 125. *E. Fl. v.* ii. *p.* 56. *E. Bot. t.* 204.

River-sides, ditches, and watery places. Bog of Curragha, near Ashbourne; *Mr. Underwood.* Plentiful about Lough Erne, and by the banks of the river Fergus above the bridge of Ennis. Portmore, County of Down; *Mr. Templeton. Fl.* July, Aug. ♃.—*Stem* three to four feet high, furrowed. *Fruit* small. *Leaflets* distant, five to nine on a leaf.

2. S. *angustifolium*, Linn. *Narrow-leaved Water-Parsnep.* Stem erect; leaflets unequally lobed and serrated; umbels pedunculate, opposite to the leaves. *Br. Fl.* 1. *p.* 125. *E. Fl. v.* ii. *p.* 56. *E. Bot. t.* 139.

Ditches and open drains, not uncommon in many parts of Ireland. *Fl.* July, Aug. ♃.—Smaller than the last. *Stem* striated. *Leaflets* of the upper *leaves* most unequal and lanciuated; *radical* ones ovate, their lowermost leaflets distant.

3. S. *nodiflorum*, Linn. *Procumbent Water-Parsnep.* Stem procumbent; leaves pinnate; leaflets ovate, subequally serrated; umbels sessile opposite to the leaves. *Br. Fl.* 1. *p.* 125. *E. Fl. v.* ii. *p.* 57. *E. Bot. t.* 639.—*Helosciadium, Koch.*

Sides of lakes, rivulets and ditches, very common. *Fl.* July, Aug. ♃.—One foot and a half to two feet high. *Leaflets* of the radical *leaves* sometimes with a lobe at the base on the upper margin. *Petals* slightly incurved at the apex.

4. S. *repens*, Linn. *Creeping Water-Parsnep.* Stem creeping; leaflets broadly ovate, inciso-dentate; umbels on peduncles opposite to the leaves. *Br. Fl.* 1. *p.* 125. *E. Fl. v.* ii. *p.* 58. *E. Bot. t.* 1431.—*Helosciadium, Koch.*

Boggy meadows and watery places. In a marsh by the river Fergus, a little above the bridge of Ennis. The plant that has been mistaken for this, growing on the Hill of Howth, I believe to be only a dwarf variety of the last. *Stem* six to ten inches long. *Leaflets* five to nine. *Fl.* July, Aug. ♃.

5. S. *inundatum*, Wiggers. *Least Water-Parsnep.* Stems creeping; leaves pinnate, cut, the lowermost in many compound capillary segments; umbels 5-flowered, in pairs. *Br. Fl.* 1. *p.* 125. *E. Fl. v.* ii. *p.* 58.—*Sison inundatum, E. Bot. t.* 227.—*Hydrocotyle inundata, Sm. Fl. Brit. p.* 290.

Lakes and pools that are dried up in summer, not unfrequent. Abundant in a marsh near the summit of Howth. *Fl.* May—July. ♂ ? ⊙ ?—*Stems* four to six inches long, most of them capillaceo-multifid, with the segments small and lanceolate. *Partial umbels* minute, scarcely longer than their involucres. *General involucre* none. *Fruit* large in proportion to the size of the plant, striated.

14. CONOPODIUM. *Koch.* Earth-nut.

Calyx obsolete. *Petals* obcordate, with an inflexed point. *Fruit* laterally contracted, linear-oblong, crowned with the conical immarginate bases of the straight styles. *Carpels* with five, equal, filiform obtuse *ridges*, with many *vittæ*. *Seed* tereti-convex, plane in front.—Universal involucre *none*, partial *of few leaves*.—Named from *κονος*, a *cone*, and *πους*, a *foot*; from the cone-shaped bases of the styles. *Pentandria. Digynia.*

1. C. *flexuosum*. *Common Earth-nut.*—*Br. Fl.* 1. *p.* 126.—*Bunium flexuosum. With.*—*E. Fl. v.* ii. *p.* 54. *E. Bot. t.* 988.—*B. Bulbocastanum. Huds.*—*Curt. Fl. Lond.* 24.

Woods and pastures, frequent. *Fl.* May, June. ♃.—*Root* a solitary tuber, much sought after by children and pigs. *Stem* solitary, erect, flexuose, with few *leaves* much divided into very slender, linear, or almost setaceous segments. *Fruit* oblong, moderately ribbed, a little narrower upwards, crowned with the straight styles, which have conical, very tumid bases.

15. PIMPINELLA. *Linn.* Burnet-Saxifrage.

Calyx obsolete. *Petals* obcordate with an inflexed point. *Fruit* laterally contracted, ovate, crowned with the swollen base of the reflexed styles. *Carpels* with five filiform equal *ridges* of which the lateral ones are marginal. *Interstices* with many *vittæ*. *Seed* gibbous, plane in front.—*Universal* and *partial involucres* 0.—Name altered, as Linnæus informs us, from *bipennula, twice pinnated.* *Pentandria. Digynia.*

1. P. *Saxifraga*, Linn. *Common Burnet-Saxifrage.* Radical leaves pinnate, their leaflets roundish, sharply serrate or cut, those of the stem bipinnate, linear. *Br. Fl.* 1. *p.* 126. *E. Fl. v.* ii. *p.* 89. *E. Bot. t.* 407.

Dry pastures, frequent. *Fl.* July, Aug. ♃.—*Stem-leaves* few; lower and radical ones upon long stalks. *Leaflets* of the latter often deeply and pinnatifidly cut, and sometimes bipinnatifidly so.

2. P. *magna*, Linn. *Greater Burnet-Saxifrage.* Leaves all pinnate; leaflets ovato-serrate, subincised, the terminal one (rarely the lateral ones) 3-lobed. *Br. Fl.* 1. *p.* 126. *E. Fl. v.* ii. *p.* 90. *E. Bot. t.* 408.

Shady places, on a limestone soil. Friar's Walk, near Cork; Mucruss Woods, near the abbey; and churchyard at Youghal. *Fl.* July, Aug. ♃.—Larger in all its parts than the foregoing, and the *leaflets* of the upper *leaves* much broader and less divided.

16. CARUM. *Linn.* Caraway.

Calyx obsolete. *Petals* obcordate. *Fruit* laterally compressed, oblong. *Carpels* with five, filiform, equal *ridges*, their inner faces plane. *Interstices* with single *vittæ*. *Seed* tereti-convex, plane in front.—Universal *and* partial involucres *various*.—Name derived, according to Pliny, from that of the country *Caria.* *Pentandria. Digynia.*

1. C. *Carui*, Linn. *Common Caraway.* Stem branched, partial involucre none, general scarcely any. *Br. Fl.* 1. *p.* 127. *E. Fl. v.* ii. *p.* 86. *E. Bot. t.* 1503.

Meadows and pastures, occasionally. Fields near Kilmainham, &c. *Fl.* June. ♂.—*Stem* one to two feet high. *Leaves* doubly pinnated, cut into linear segments, of which the lowermost are decussate. *Umbels* dense. *Carpels* agreeably aromatic, and well known in the Kitchen and Pharmacopeia under the name of *Caraway Seeds.*

2. C. *verticillatum*, Koch. *Whorled Caraway.* Leaflets all capillary in short whorled segments. *Br. Fl.* 1. *p.* 127.—*Sium verticillatum*, *E. Fl. v.* ii. *p.* 59.—*Sison verticillatum*, *Linn.*—*E. Bot. t.* 395.

Moist meadows. Marsh near Lane Bridge, Killarney and other places in Kerry. Marshes in the district called Cranmore, near Belfast; *Mr. Templeton.* Salt marshes below Coleraine, County of Derry; *Mr. D. Moore. Fl.* May, June. ♃.—*Leaves* mostly radical; a long common *petiole* bears a number of opposite multifid capillary *leaves*, whose spreading makes them appear whorled. *Stem* a foot high, slender. *Umbels* few, terminal. *Involucre* very small.

17. ÆGOPODIUM. *Linn.* Gout-weed.

Calyx obsolete. *Petals* obcordate, with an inflexed point. *Fruit* laterally compressed, oblong. *Carpels* with 5 filiform *ridges*, of which the lateral ones are marginal. *Interstices* without *vittæ*. *Seed* tereti-convex, plane in front.—*Universal* and *partial involucres* 0.—Differs from *Carum* only in the absence of *vittæ*. —Name from *αιξ*, *αιγος*, a *goat*, and *πους*, *foot*: the leaves being cleft something like a goat's foot.

Pentandria. Digynia.

1. Æ. *Podagraria*, Linn. *Gout-weed, or Herb-Gerarde. Br. Fl.* 1. *p.* 127. *E. Fl. v.* ii. *p.* 77. *E. Bot. t.* 940.

Gardens and wet places; not very common near Dublin, but very plentiful near Belfast and other parts in the north. Often a troublesome weed in gardens. *Fl.* May, June. ♃.—A foot and a half high. *Radical leaves* twice ternate, upper ones ternate; *leaflets* ovate, acuminate, unequally serrated. The creeping *root* is pungent and aromatic.

18. TRINIA. *Hoffm.* Honewort.

Calyx obsolete. *Petals* of the *barren plant* lanceolate, subemarginate, with a contracted involute point, of the *fertile* ovate, with a short inflexed point. *Fruit* laterally compressed, ovate. *Carpels* with five prominent, filiform, equal *ridges*, of which the lateral ones are marginal. *Interstices* without *vittæ* or nearly so; but with a distinct canal under each ridge. *Seed* gibbous, convex. Involucres *various.* The two kinds of petals, the diœcious plants, and the vittæ or evident canals beneath the *ridges*, together with a peculiar habit, constitute this a very distinct genus. *Hook.*—Named in honour of *Dr. C. B. Trinius*, a learned Botanist of St. Petersburgh, Author of a *Species Graminum*, &c. *Pentandria. Digynia.*

1. T. *glaberrima*, Hoffm. *Glabrous Honewort.* Grabrous; leaves tripinnate; leaflets linear uniform; involucre none. *Br. Fl.* 1. *p.* 128.—*Pimpinella dioica*, *E. Fl. v.* ii. *p.* 90. *E. Bot. t.* 1209.

Limestone rocks, rare. Said to have been found by the late Doctor Wade near Athboy, but I have never seen Irish specimens. *Fl.* May, June. ♃.

19. Apium. *Linn.* Celery.

Calyx obsolete. *Petals* roundish, entire, with a small, closely involute point. *Fruit* roundish, laterally contracted, didymous. *Carpels* with three, filiform, equal *ridges*, of which the lateral ones are marginal. *Interstices* with single *vittæ*, outer ones frequently with two or three *vittæ*. *Seed* gibbous, convex, plane in front.—Universal *and* partial involucres 0.—Name, *apon, water,* in Celtic; from the places where the plant grows. *Pentandria. Digynia.*

1. A. *graveolens*, Linn. *Smallage or wild Celery.* *Br. Fl.* 1. *p.* 129. *E. Fl. v.* ii. *p.* 76. *E. Bot. t.* 1210.

Marshy places, generally near the sea. Plentiful near Irishtown and Baldoyle, and various places on the Dublin coast. *Fl.* Aug. ♂.—*Stem* furrowed, two feet high. *Leaves* ternate, leaflets large, wedge-shaped, lobed and cut at the extremity; the lower leaves are upon long stalks, with their leaflets rounder and truncate at the base. *Umbels* often sessile; petiolated ones of few flowers.—This is the origin of our *garden Celery,* and both the seeds and roots are well known as culinary articles. The *Apium petroselinum,* Linn. or *garden parsley,* although having been observed in a naturalized state on some old castles in the County of Cork, cannot be considered as indigenous.

20. Cicuta. *Linn.* Cowbane.

Calyx of five teeth, leafy. *Petals* obcordate with an inflexed point. *Fruit* roundish, contracted at the side, didymous. *Carpels* with five nearly plane, equal *ridges,* of which the lateral ones are marginal. *Interstices* with single *vittæ*, which in the dry fruit are more raised than the ridges. *Seed* terete.—Universal involucre *of few leaves,* or 0; partial of *many leaves.*—Name, *Cicuta* was a term given by the Latins to those spaces between the joints of a reed of which their pipes were made; and the stem of this plant is similarly marked by hollow articulations. *Pentandria. Digynia.*

1. C. *virosa*, Linn. *Water Hemlock or Cowbane.* *Br. Fl.* 1. *p.* 129. *E. Fl. v.* ii. *p.* 62. *E. Bot. t.* 479.

In ditches, and about the margins of rivers and lakes. Plentiful in ditches near the lake at Farnham, and many other places on the banks of Lough Erne. *Fl.* July, Aug. ♃.—*Stem* three to four feet high, branched. *Root* and lower part of the stem, which is very large, hollow, and divided by transverse partitions into large cells. *Leaves* biternate, the radical ones pinnated; *leaflets* lanceolate, serrated. *Umbels* pedunculate.—A deadly poison.

(VII. SCANDIX TRIBE.)

21. CHÆROPHYLLUM. *Linn.* Chervil.

Calyx obsolete. *Petals* obcordate, with an inflexed point. *Fruit* laterally compressed, or contracted. *Carpels* with five obtuse, equal *ridges*, of which the lateral ones are marginal, with a deep furrow on the inner face of the carpels. *Interstices* with single *vittæ.* *Seed* tereti-convex, furrowed in front. —Universal involucre 0, *or of few leaves*, partial *of many leaves.*—Differs from all the *Ammi Tribe* in the deep furrow in front of each carpel.—Name from *χαιρω*, to *rejoice*, and *φυλλον*, a *leaf:* hence our word *Chervil*, applied to the cultivated *Anthriscus Cerefolium*, whose leaves have an agreeable smell. *Pentandria. Digynia.*

1. C. *temulentum*, Linn. *Rough Chervil.* Fruit with obtuse ribs; stem rough, (spotted) swelling below each joint; partial involucres reflexed. *Br. Fl.* 1. *p.* 130. *E. Bot. t.* 1521.—*Myrrhis temulenta, E. Fl. v.* ii. *p.* 51.

Hedges and bushy places, common. *Fl.* June, July. ♃.—Three feet or more high, rough with hairs. *Leaves* doubly pinnate; *leaflets* pinnatifid or inciso-lobate. *Fruit* linear oblong, striated. *Umbels* at first drooping.

22. ANTHRISCUS. *Pers.* Beaked-Parsley.

Calyx obsolete. *Petals* obcordate with an inflexed, generally short, point. *Fruit* contracted on the side, rostrate. *Carpels* subterete, without *ridges*, the beak alone with five ridges. *Seed* tereti-convex, deeply furrowed in front.—Universal involucre *none*, partial *of many leaves.*—Name given by Pliny to a plant allied probably to this genus, but whose derivation we are ignorant of. *Pentandria. Digynia.*

* *Carpels smooth.*

1. A. *sylvestris*, Koch. *Wild Beaked-Parsley.* Umbels terminal, stalked; stem a little swelling below each joint, glabrous. *Br. Fl.* 1. *p.* 131.—*Chærophyllum sylvestre, Linn.*—*E. Fl. v.* ii. *p.* 48. *E. Bot. t.* 752.

Under hedges and borders of fields, frequent. *Fl.* April—June. ♃.—Three feet or more high, branched. *Leaves* triply pinnate; *leaflets* ovato-lanceolate, deeply cut. *Umbels* at first slightly drooping. *Partial involucres* of several ovato-lanceolate leaves. *Fruit* linear oblong, with a much less evident beak than in *A. Cerefolium.* This beak, alone, is marked with a few ribs.

2. A. *Cerefolium*, Koch. *Garden Beaked-Parsley.* Umbels lateral, sessile; leaves tripartite, decompound; leaflets ovate, pinnatifid, segments obtuse. *Br. Fl.* 1. *p.* 131.—*Scandix Cerefolium,*

Linn.—*E. Bot. t.* 1268.—*Chærophyllum sativum, E. Fl. v.* ii. *p.* 48.

Hedges and waste places, probably the outcast of gardens. *Fl.* July. ⊙.—*Stem* slender, one foot and a half to two feet high. *Leaves* pale yellow green, delicate. *Umbels* sessile, lateral, of few rays, pubescent. *Partial involucres* of few leaves, about three, unilateral, linear. *Umbellules* small. *Fruit* large, perfectly glabrous, linear, tapering upwards. Known as a salad and pot-herb under the name of *Garden Chervil.*

* * *Carpels muricated.*

3. A. *vulgaris*, Pers. *Common Beaked-Parsley.* Stem smooth; leaves ternately decompound, the segments obtuse; umbels opposite the leaves; fruit ovately conical, hispid, about twice as long as the glabrous beak. *Br. Fl.* 1. *p.* 131. *E. Fl. v.* ii. *p.* 45.—*Scandix Anthriscus, E. Bot. t.* 818.

Waste places, by road-sides, especially near towns and villages, frequent. *Fl.* May, June. ⊙.—Two feet or more high, swelling under each joint. *Leaves* slightly hairy. *Partial umbels* small, with small involucres. *Fruit* rather large, with a distinct furrow on each side which extends to the beak, covered with hooked bristles.

23. SCANDIX. *Linn.* Shepherd's-Needle.

Calyx obsolete. *Petals* obovate, with an inflexed point. *Fruit* laterally compressed, with a very long beak. *Carpels* with five obtuse equal *ridges*, the lateral ones marginal. *Interstices* without ridges, or obsolete *vittæ.* Seed tereti-convex, with a deep furrow in front.—Universal involucre 0, or *of few leaves*, partial *of* 5—7 *leaves.*—Name from *σκεω*, to *prick*, because of the sharp and long points to the seeds.

Pentandria. Digynia.

1. S. *Pecten*, Linn. *Needle Chervil, Venus' Comb, or Shepherd's Needle.* Fruit roughish; leaflets cut into many linear short segments. *Br. Fl.* 1. *p.* 131. *E. Fl. v.* ii. *p.* 48. *E. Bot. t.* 1386.

Corn fields, abundant. *Fl.* June, July. ⊙.—*Stem* 4—6 inches to a foot high, roughish. *Leaves* triply pinnate. *Umbels* of very few rays, two to three. *Partial involucres* pinnatifid or bipinnatifid. *Fruit* of singular appearance, and very large in proportion to the size of the plant and of the flowers that produce it.

24. MYRRHIS. *Tourn.* Cicely.

Calyx obsolete. *Petals* obcordate with an inflexed point. *Fruit* laterally compressed. *Seed* with its sides involute, covered by a pericarp, formed of two membranes, the exterior having five equal, acutely carinated *ridges*, hollow within, closely adnate to the interior. *Vittæ* none.—Universal involucre 0, partial *of many leaves.*—Name derived perhaps from *Myrrha*, *myrrh*, the foliage of one species at least possessing an agreeable scent. *Pentandria. Digynia.*

1. M. *odorata*, Scop. *Sweet Cicely.* Fruit large with very short ribs and deep furrows between them. *Br. Fl.* 1. *p.* 132. *E. Fl. v.* ii. *p.* 50.—*Scandix odorata, Linn. E. Bot. t.* 687.

Orchards and waste places, probably the outcast of gardens. Near Oldcastle, and other places in the County of Meath; *!Rev. Mr. Halpin.* Umbra rocks, Magilligan; *Mr. D. Moore*, who thinks it truly wild. *Fl.* May, June. ♃.—Whole plant highly aromatic, two feet high or more. *Leaves* large, triply pinnate; *leaflets* pinnatifid.

(VIII. SMYRNIUM TRIBE.)

25. SMYRNIUM. *Linn.* Alexanders.

Calyx obsolete. *Petals* lanceolate or elliptical, entire with an inflexed point. *Fruit* laterally contracted. *Carpels* reniformi-globose, didymous, each with three dorsal, prominent, sharp *ridges*, the two lateral and marginal ones nearly obsolete. *Interstices* with many *vittæ*. *Seed* involute.—Involucre *various.*—Name from σμυρνα, synonymous with μυρρα, *Myrrh*, from the scent of the juice. *Pentandria. Digynia.*

1. S. *Olusatrum*, Linn. *Common Alexanders.* Cauline leaves ternate, petiolate, serrate. *Br. Fl.* 1. *p.* 132. *E. Fl. v.* ii. *p.* 76. *E. Bot. t.* 230.

Waste grounds and ditch banks, very common; especially near Dublin. *Fl.* May, June. ♂.—*Stem* three to four feet high, very stout, furrowed. *Leaves* bright yellow green, twice or (the lower ones) thrice ternate, with a very broad membranous base; *leaflets* very large, broadly ovate, lobed and serrated. *Flowers* yellow green, in very dense, numerous, rounded *umbels*. *Involucres* none. *Fruit* almost black when ripe.—Aromatic, but too strong and pungent to be agreeable. It was formerly used as a *pot herb*.

26. CONIUM. *Linn.* Hemlock.

Calyx obsolete. *Petals* obcordate, with an inflexed point. *Fruit* laterally compressed, ovate. *Carpels* with five prominent, waved or crenated, equal *ridges*, of which the lateral ones are marginal. *Interstices* with many striæ, without *vittæ*. *Seed* with a sharp narrow groove in front.—Universal involucre *of few leaves*, partial *of three leaves on one side.*—Name κωνειον of Theophrastus, from κωνος, a *cone*, or a *top*, whose whirling motion resembles the giddiness produced on the human constitution by the poisonous juice of this plant. *Pentandria. Digynia.*

1. C. *maculatum*, Linn. *Common Hemlock.* Stem glabrous, spotted; leaves tripinnate; leaflets lanceolate, pinnatifid with

acute and often cut segments. *Br. Fl.* 1. *p.* 134. *E. Fl. v.* ii. *p.* 65. *E. Bot. t.* 1191.

Waste dry places, banks, and under walls, not unfrequent. *Fl.* June, July. ♂.—*Root* fusiform. *Stem* two to four feet high, striated and spotted with purple, much branched upwards. *Leaves* large, much divided, when bruised extremely fetid, yielding an extract which has been much employed both in the cure of scrofulous and cancerous maladies, and for the purpose of lowering the pulse. So powerful a plant should be carefully distinguished from its allies, which is best done by its spotted stem, fetid smell, and by the unilateral partial involucres, together with the waved ridges of the fruit.

C. *Umbels Imperfect.*

(IX. SANICULA TRIBE.)

27. SANICULA. *Linn.* Sanicle.

Calyx a leafy margin. *Petals* erect, converging, obovate, emarginate, with an abruptly incurved segment the length of the petals. *Fruit* terete, nearly round. *Carpels* densely covered with hooked prickles, no ridges, but many vittæ. *Seed* half round —Universal and partial involucres *of several leaves.*—Name derived from *sano*, to *heal*, because this plant was supposed "to make whole and sound all inward wounds and outward hurts." *Pentandria. Digynia.*

1. S. *europæa*, Linn. *Wood Sanicle.* Radical leaves simple, deeply lobed; flowers all nearly sessile. *Br. Fl.* 1. *p.* 135. *E. Fl. v.* ii. *p.* 36. *E. Bot. t.* 98.

Woods and thickets, frequent. *Fl.* May, June. ♃.—*Leaves* mostly radical, finely serrated, almost ciliated. *Heads of flowers* small, white.

28. ERYNGIUM. *Linn.* Eryngo.

Calyx a 5-toothed leafy margin. *Petals* erect, converging, oblong-obovate, emarginate, with an abruptly incurved segment the length of the petal. *Fruit* subterete, obovate. *Carpella* covered with scales with neither ridges nor *vittæ*. *Seed* semiterete.—Umbels *simple*. Involucrum *many-leaved.* Flowers *usually blue*. Leaves *simple.*—Name ερυλλιον of Dioscorides. *Pentandria. Digynia.*

1. E. *maritimum*, Linn. *Sea-Eryngo, Sea-Holly.* Radical leaves roundish, plaited, spinous, stalked; upper ones lobed, palmated, amplexicaul, rigid; involucres longer than the heads; scales of the receptacle 3-cleft. *Br. Fl.* 1. *p.* 135. *E. Fl. v.* ii. *p.* 35. *E. Bot. t.* 718.

Sandy sea-shores, frequent. *Fl.* July, Aug. ♃.—Whole plant very stiff and rigid, glaucous. *Leaves* and *involucres* beautifully veiny. *Flowers* blue, in dense heads, having at first more the appearance of a *compound flower*, than of an *umbelliferous plant*. The *roots* are well tasted, when candied. Linnæus recommends the bleached shoots as a substitute for Asparagus.

2. E. *campestre*, Linn. *Field Eryngo*. Radical leaves subternate, lobes pinnatifid, cauline ones bipinnatifid, amplexicaul, all with spinous teeth; involucres lanceolate, spinous; scales of the receptacle undivided. *Br. Fl.* 1. *p.* 135. *E. Fl. v.* ii. *p.* 35. *E. Bot. t.* 57.

Rare. Sandy fields near Lismore, Waterford; *Mr. J. Drummond. Fl.* July, Aug. ♃.

(X. HYDROCOTYLE TRIBE.)

29. HYDROCOTYLE. *Linn.* White-rot.

Calyx an obsolete margin. *Petals* ovate, entire, acute, with a straight point. *Fruit* compressed at the side, so as to form two little shields. *Carpels* with five filiform ridges, those of the keel and sides nearly obsolete, the intermediate arched, without vittæ. *Seed* carinate, compressed.—*Creeping* herbs, with simple leaves, and green obscure flowers.—Name from *ὑδωρ*, *water*, and *κοτυλη*, a *cup* or *vase*. The leaves are a little depressed, and stalked in the centre, and may thence somewhat resemble a cup or platter. The plant grows in watery places. *Pentandria. Digynia.*

1. H. *vulgaris*, Linn. *Common White-rot, Marsh Penny-wort.* Leaves orbicular, peltate, smooth, cloven at the base; umbels somewhat aggregate; flowers nearly sessile. *Smith.*—*Br. Fl.* 1. *p.* 136. *E. Fl. v.* ii. *p.* 96. *E. Bot. t.* 751.

Bogs, marshes, and banks of lakes, frequent. *Fl.* May, June. ♃.—*Stems* creeping, producing from their joints clusters of petiolated *leaves*, and simple *flowerstalks*, which are much shorter than the petioles. *Flowers* often with a reddish tinge.

ORD. 34. STELLATÆ. *Lindl.* Madder Family.

Calyx superior, 4—5 or 6-lobed. Corolla monopetalous, rotate or tubular, regular, inserted into the calyx. Stamens equal in number to the lobes of the corolla, and alternate with them. Ovarium simple, 2-celled; ovules solitary, erect; style simple; stigmas two. Fruit a dry indehiscent pericarpium, with two cells, and two seeds. Seeds erect, solitary; embryo straight in the axis of horny albumen; radicle inferior; cotyledons leafy.—*Herbaceous plants; with whorled leaves, destitute of stipulæ; square stems; roots staining red; flowers minute.*

1. GALIUM. *Linn.* Bed-straw.

Corolla rotate, or campanulate, 5-cleft. *Fruit* dry, not crowned by the calyx.—Name from γαλα, *milk:* the plant having been formerly employed to curdle milk.

~~Pent~~4andria. Monogynia.

* *Fruit smooth. Flowers yellow.*

1. G. *verum*, Linn. *Yellow Bed-straw.* Leaves eight in a whorl, linear, channelled, entire, rough; flowers in dense panicles. *Br. Fl.* 1. *p.* 61. *E. Fl. v.* i. *p.* 208. *E. Bot. t.* 660.

Dry banks, sandy places, and sea-shores, common. *Fl.* July, Aug. ♃.—Readily distinguished by its yellow *flowers*, and linear deflexed *leaves*. The Highlanders are said to employ this plant as a Rennet for curdling milk, combined with the leaves of the common Nettle and a little salt.

* * *Fruit glabrous. Flowers white.*

2. G. *palustre*, Linn. *White Water Bed-straw.* Leaves 4—6 in a whorl, oblongo-lanceolate, obtuse, tapering at the base, and as well as the lax, spreading, branched stem more or less rough.

α. stem and leaves smoothish. *Br. Fl.* 1. *p.* 62.—*G. palustre, E. Fl. v.* i. *p.* 198. *E. Bot. t.* 1857.

β. nerves at the back and margins of the leaves, and angles of the stem, distinctly rough with mostly reflexed prickles. *Br. Fl.* 1. *p.* 62.—*G. Witheringii, E. Fl. v.* i. *p.* 200. *E. Bot. t.* 2206.

Sides of ditches, lakes and rivulets. *Fl.* July. ♃.—"The transition from the smooth to the rough state of this plant, may be observed on the borders of pools, and it is only in wet situations that it corresponds with the description in *E. Fl.* of *G. palustre.* In dry situations, especially by road-sides where the earth has been recently disturbed (in the neighbourhood of marshes) it assumes the state of *G. Witheringii*, but is very luxuriant and branched. In marshes, not liable to be overflowed, and in boggy ground, it is in every respect like that described in *E. Fl.* under *G. Witheringii.*" *Wilson MSS.* quoted by Hooker. The plant turns blackish in drying, and the upper leaves are generally unequal in size. The variations of this plant, as stated above, may be seen in the common beyond Kingstown, where it is abundant in the summer months.

3. G. *uliginosum*, Linn. *Rough Marsh Bed-straw.* Leaves six in a whorl, lanceolate, mucronate, their margins and the stem rough with reflexed prickles. *Br. Fl.* 1. *p.* 62. *E. Fl. v.* i. *p.* 201. *E. Bot. t.* 1972.

Wet meadows and sides of ditches, frequent. *Fl.* Aug. ♃.—Distinguished by the lanceolate *leaves*, tapering at the base and shortly acuminated at the points into a mucro. *Bristles* on the plant all reflexed.

4. G. *saxatile*, Linn. *Smooth Heath Bed-straw.* Leaves six in a whorl, obovate, mucronate; stem very much branched, prostrate, smooth. *Br. Fl.* 1. *p.* 62. *E. Fl. v.* i. *p.* 201. *E. Bot. t.* 815.

Heathy places, hilly and mountainous pastures, abundant; often covering rocks (as on Killiney Hill) in large patches, and adorning them in the summer months with its profusion of milk-white flowers. *Fl.* June—Aug. ♃.—*Leaves* often rough at the margins, of a thickish and rather soft texture. *Panicles* forked, terminal or lateral. *Seed* reddish after the flowers fall.

5. G. *erectum*, Huds. *Upright Bed-straw.* Leaves about eight in a whorl, lanceolate, bristle-pointed, with marginal prickles all pointing forward; stem weak, much branched, smooth; fruit smooth and even; corolla taper-pointed. *Br. Fl.* 1. *p.* 62. *E. Fl. v.* i. *p.* 202. *E. Bot. t.* 2067.

On the north side of Killiney Hill; *Miss Green*, July, 1834. *Fl.* June, July. ♃.—Differs from *G. uliginosum* by the edges and the adjoining portion of the disk of the leaves above, bearing a double row of hooked prickles all pointing forward, in its larger size, stouter habit, glaucous hue, and larger, less obovate *leaves*.

6. G. *Mollugo*, Linn. *Great Hedge Bed-straw.* Leaves eight in a whorl, elliptical, bluntish, bristle-pointed, rough edged; flowers in loose spreading panicles; corolla thick-tipped; fruit smooth, globular. *Br.Fl.* 1. *p.* 63. *E. Fl. v.* i. *p.* 208. *E. Bot. t.* 1673.

Sandy fields, and dry bushy places. More common about Dublin than in other parts of Ireland. Lawn at Mr. Vernon's, near Belfast; *Mr. Templeton. Fl.* July, Aug. ♃.—*Stem* often five feet long, as I have observed in plants growing near Sandymount. *Prickles* on the margins of the leaves pointing forward.

7. G. *pusillum*, Linn. *Least Mountain Bed-straw.* Leaves eight in a whorl, linear-lanceolate, hair-pointed, entire, somewhat hairy; panicles terminal, forked; fruit very smooth. *Br. Fl.* 1. *p.* 63. *E. Fl. v.* i. *p.* 206. *E. Bot. t.* 74.

Limestone rocks at Mucruss, Killarney, near Corrofin, and at Rock Forest, County of Clare. *Fl.* July, Aug. ♃.—*Stems* numerous, rough on the lower part. *Flowers* white, very numerous.

* * * *Fruit hispid. Flowers white.*

8. G. *boreale*, Linn. *Cross-leaved Bed-straw.* Leaves four in a whorl, ovato-lanceolate, 3-ribbed, smooth, with rough edges, stem erect; fruit bristly. *Br. Fl.* 1. *p.* 64. *E. Fl. v.* i. *p.* 209. *E. Bot. t.* 105.

Moist rocks on the banks of Lough Erne, near Ely Lodge, and by Lough Neagh, near Shane's Castle; on Mangerton Mountain, in a marshy spot about half-way up. *Fl.* June, July. ♃.—*Flowers* numerous, crowded, white. *Bristles* of the fruit rough.

9. G. *Aparine*, Linn. *Goose-grass or Cleavers.* Leaves 6—8 in a whorl, lanceolate, keeled, rough, fringed with reflexed bristles; stem weak; fruit bristly. *Br. Fl.* 1. *p.* 65. *E. Fl. v.* i. *p.* 210. *E. Bot. t.* 816.

Plant straggling among bushes. *Flowers* few, or two or three short, simple *footstalks*, arising from the axils of the leaves. *Bristles* of the *fruit* hooked, which by this means catch hold of the coats of animals, and are widely dispersed. The seeds have been recommended as a substitute for *coffee*. *Hook.* *Fl.* May—Aug. ⊙.

2. ASPERULA. *Linn.* Woodruff.

Corolla funnel-shaped. *Fruit* without any distinct margin to the calyx.—Name from *asper*, rough, owing to the roughness of some species of the Genus. *Tetrandria. Monogynia.*

1. A. *odorata*, Linn. *Sweet Woodruff.* Leaves eight in a whorl, lanceolate; panicles stalked, of few flowers. *Br. Fl.* 1. *p.* 65. *E. Fl. v.* i. *p.* 196. *E. Bot. t.* 755.

Woods and shady places, plentiful. *Fl.* May, June. ♃.—About six inches high, erect. *Flowers* white. Whole *plant* very fragrant, especially in the act of drying and when dry.

2. A. *Cynanchica*, Linn. *Small Woodruff, Squinancy-wort.* Leaves linear, four in a whorl; the upper ones very unequal; flowers all 4-cleft; fruit smooth. *Br. Fl.* 1. *p.* 65. *E. Fl. v.* i. *p.* 198. *E. Bot. t.* 33.

Abundant on limestone rocks about Corrofin and other places in the County of Clare, and in the large Island of Arran, where I collected specimens in 1805, but neglected to insert it in my last catalogue. *Fl.* June, July. ♃.—*Stem* branching. *Flowers* white or bluish coloured, with three red lines on each segment.

3. SHERARDIA. *Linn.* Field Madder.

Corolla funnel-shaped, 4-cleft. *Fruit* dry, crowned with the persistent teeth of the calyx.—Named in honour of *James Sherard*, an English Botanist and Patron of Botany, whose fine garden at Eltham in Kent, gave rise to the famous "*Hortus Elthamensis*" of Dillenius. *Tetrandria. Monogynia.*

1. S. *arvensis*, Linn. *Blue Sherardia.* All the leaves whorled; flowers terminal. *Br. Fl.* 1. *p.* 66. *E. Fl. v.* i. *p.* 196. *E. Bot. t.* 893.

Corn fields, and dry gravelly banks, frequent. *Fl.* June—Aug. ⊙.—*Stem* branching. *Calyx* of two sepals. *Corolla* purplish blue.

4. RUBIA. *Linn.* Madder.

Corolla rotate or campanulate, 4 or 5-lobed. *Stamens* 4 or 5. *Fruit* a 2-lobed berry.—Name from *ruber*, red, from the red dye afforded by the species, especially the *Rubia tinctorum*, which produces the true *Madder* or *Turkey red* of commerce. *Tetrandria. Monogynia.*

1. R. *peregrina*, Linn. *Wild Madder.* Leaves 4—6 in a whorl, lanceolate, persistent, glossy, the margin and keel rough

with reflexed prickles; flowers 5-cleft. *Br. Fl.* 1. *p.* 65. *E. Fl. v.* i. *p.* 211. *E. Bot. t.* 851.

Dry gravelly banks and rocks on the south side of Howth, and Killiney Hill; also abundant on limestone rocks at Mucruss and Killarney. Hedges near Passage, County of Cork; *Rev. Dr. Hincks. Fl.* June—Aug. ♃.—Mr. Wilson justly remarks, as stated by Dr. Hooker, that the corolla is rather rotate than campanulate, which is the case in some foreign species; (or funnel shaped as in *R. tinctorum*); the segments, after the escape of the pollen, spreading with convex surfaces, concave in the newly opened flowers.

ORD. 35. CAPRIFOLIACEÆ. *Juss.* Honeysuckle Family.

Tube of the calyx adnate with the ovary, the limb 5-lobed. Corolla of one petal, inserted upon the calyx, the limb more or less lobed, sometimes irregular. Stamens inserted upon the calyx, adnate with the base of the corolla, alternate with its lobes, equal in number with them (one sometimes abortive), exserted or included: filaments subulate: anthers ovate, 2-celled; style exserted or wanting. Stigmas 1 or 3, distinct or collected into a head. Berry crowned with the limb of the calyx, generally dry, or fleshy, 1—or more-celled. Seeds solitary, 2 or many in each cell, sometimes several abortive, pendulous; testa crustaceous. Albumen fleshy. Embryo in the centre of the albumen; radicle superior; cotyledons ovato-oblong.—*Shrubs, rarely trees. Leaves opposite, without stipules, or usually so, simple or pinnated. Flowers terminal and corymbose or axillary.*

§ *Lonicereæ.*

Corolla monopetalous.

1. LONICERA. *Linn.* Common Honeysuckle.

Corolla irregular. Berry 1—3-celled, many-seeded.—Name given in honour of *Adam Lonicer*, a German Botanist.
Pentandria. Monogynia.

1. L. *Periclymenum*, Linn. *Common Honeysuckle, or Woodbine.* Flowers ringent, capitate, terminal; leaves all distinct. *Br. Fl.* 1. *p.* 103. *E. Fl. v.* i. *p.* 326. *E. Bot. t.* 800.—*Caprifolium Periclymenum, Lindl. Syn.*

β. Caprifolium, non perfoliatum, foliis sinuosis et variegatis. *Tourn. Inst.* 608. *Dill. in Raii Syn.* 458.

In hedges, groves, among rocks, and in bushy places, frequent. *β.* Among rocks on Killiney Hill, near the Obelisk. *Fl.* June—Oct. ♄.—*Berries* solitary and distinct. *Stem* invariably twining in one direction. In the var. *β.* the leaves are sinuated like those of an oak, and sometimes variegated.

2. VIBURNUM. *Linn.* Guelder-rose.

Calyx 5-cleft. *Corolla* campanulate, 5-lobed. *Stamens* 5. *Fruit* succulent, 3-seeded.—Name of doubtful origin.
Pentandria. Trigynia.

1. V. *Opulus*, Linn. *Common Guelder-rose.* Leaves 3-lobed; footstalks beset with glands. *Br. Fl.* 1. *p.* 142. *E. Fl. v.* ii. *p.* 107. *E. Bot. t.* 332.

Woods, hedges, and crevices of rocks, not unfrequent. Hedges near Dundrum; Powerscourt woods; rocky banks at the upper end of Collin Glen, and other places near Belfast; banks of Lough Neagh, near Antrim Castle. *Fl.* June, July. ♄.—Small *tree*, or large *shrub*, very glabrous. *Leaves* large, subcordate, broad. *Cymes* large, white, with linear bracteas. The perfect *flowers* small; abortive one in the circumference, consisting of a very large plane, five-lobed *petal*, without either stamen or pistil. *Flowers* erect. *Berries* reddish-purple, drooping. The snow-ball tree, well known in gardens and shrubberies, belongs to this species. In it, nearly all the flowers are enlarged and form globular heads.

3. SAMBUCUS. *Linn.* Elder.

Calyx 5-cleft. *Corolla* rotate, 5-lobed. *Berry* inferior, 3 or 4-seeded.—Name, from σαμβυκη, a musical instrument, in the construction of which this wood is said to have been employed.
Pentandria. Trigynia.

1. S. *Ebulus*, Linn. *Dwarf Elder.* Cymes with three main branches; stipules leafy; stem herbaceous. *Br. Fl.* 1. *p.* 143. *E. Fl. v.* ii. *p.* 108. *E. Bot. t.* 475.

Waste places and way-sides. Near the gate in Powerscourt demesne, at the entrance to the deer park; near Kenmare, County of Kerry. Plentiful near Hollywood and Lisburn, and other places in the counties of Down and Antrim; *Mr. Templeton* and *Mr. Campbell. Fl.* July. ♃.—*Stem* two to three feet high, angular and furrowed. *Leaves* pinnate; *leaflets* serrated. *Cymes* large, terminal, purplish. *Anthers* large, purple. *Berries* sphærical, black. The plant has a fetid smell, and is violently purgative.

2. S. *nigra*, Linn. *Common Elder.* Cymes with five main branches; stipules obsolete; leaflets ovate; stem arboreous. *Br. Fl.* 1. *p.* 143. *E. Fl. v.* ii. *p.* 109. *E. Bot. t.* 476.

Woods and hedges, frequent. *Fl.* June. ♄.—A small *tree* having the stems and branches abounding with pith. *Cymes* terminal, large, cream-coloured, smelling unpleasantly. *Anthers* small, yellow. *Berries* purple-black, sometimes white. The bark is used by country practitioners medicinally, and the berries are frequently used in England for making wine.

§ *Hederaceæ.* Ach. Rich.

Corolla polypetalous.

4. CORNUS. *Linn.* Cornel.

Calyx of four teeth. *Petals* four, superior. *Nut* of the drupe with two cells and two seeds.—Name from *Cornu*, a *Horn*, owing to the hard nature of the wood.

Tetrandria. Monogynia.

1. C. *sanguinea*, Linn. *Wild Cornel or Dogwood.* Branches straight; leaves green on both sides; cymes naked, flat. *Br. Fl.* 1. *p.* 69. *E. Fl. v.* i. *p.* 221. *E. Bot. t.* 249.

In crevices of limestone rocks, south Isles of Arran, truly wild. Abundant in hedges below Coolock, scarcely indigenous. *Fl.* June, July. ♄.—*Shrub* three to four feet high. *Branches* dark red when full grown. *Wood* hard. *Petals* white.

5. HEDERA. *Linn.* Ivy.

Calyx of five teeth. *Petals* five, broadest at the base. *Style* simple. *Berry* with 3 to 5 *seeds*, crowned by the calyx.—Name of uncertain origin. *Pentandria. Monogynia.*

1. H. *Helix*, Linn. *Common Ivy.* Leaves ovate, or cordate and 5-lobed; lobes angular; umbel erect. *Br. Fl.* 1. *p.* 109. *E. Fl. v.* i. *p.* 334. *E. Bot. t.* 1267.

Hedges, woods, old buildings, and on trunks of trees, frequent. *Fl.* Oct. Nov. ♄.—*Stems* very long, creeping, throwing out numerous tufts of fibres, by which they adhere to hard substances. *Leaves* shining, dark green, often veined with white lines. *Flowers* small, pale green. *Calyx-teeth* very minute. *Petals* reflexed. *Berries* smooth and black. A variety called the *Irish Ivy* (of which I have specimens collected by Mr. W. Andrews on the rocks at Ballybunian, County of Kerry) is much cultivated on account of its very large leaves and quick growth. Another fine variety, first found near Dunganstown by Mr. Hodgens, and which I have since observed on walls near Merrion, has the leaves deeply five-lobed, resembling those of *Passiflora cærulea* or common *Passion flower.*

ORD. 36. VACCINIEÆ. *DC.* Bilberry Family.

Tube of the calyx adnate with the ovary, the limb entire or 4—5—6-lobed. Corolla monopetalous, 4—6-lobed, inserted along with the stamens, (which are twice as many as there are lobes of the corolla,) upon an epigynous disk or torus: anthers 2-celled, with 2 horns. Ovary 1: style 1: stigma 1. Fruit a berry, crowned with the persistent limb of the calyx, 4—5-celled; cells few-seeded. Embryo straight, in the axis of a fleshy albumen: cotyledons very short: radicle long, inferior.—*Small shrubs, with deciduous or evergreen leaves.*

1. VACCINIUM. *Linn.* Whortle-Berry.

Calyx superior, 4—5-toothed. *Corolla* of 1 petal, bell-shaped or campanulate, with 4—5 teeth or segments. *Anthers* with two pores. *Berry* globose, 4-celled, many-seeded.—Name; some say the ὑακινθος, of the Greeks, and hence synonymous with *Hyacinthus*; but the etymology of the word is unknown.
Octandria. Monogynia.

* *Leaves deciduous.*

1. V. *Myrtillus*, Linn. *Bilberry or Whortle-Berry.* Stalks solitary, single-flowered; leaves ovate, serrated, membranous, smooth, deciduous; stem acutely angular; calyx wavy, nearly entire. *Br. Fl.* 1. *p.* 177. *E. Fl. v.* ii. *p.* 209. *E. Bot. t.* 456.

Woods and heathy places, chiefly in mountainous districts, abundant. *Fl.* May. ♄.—*Flowers* drooping, urceolate, almost waxy, greenish with a red tinge. *Anthers* tubular, each cell opening by a pore at the extremity, and having a horn at the back. *Berry* black, glaucous, very agreeable to the taste, and known in Ireland as *Frochin-berries.*

* * *Leaves evergreen.*

2. V. *Vitis Idæa*, Linn. *Red Whortle-Berry, Cow-Berry.* Clusters terminal, drooping, with ovate, concave bracteas, longer than the flower stalks; leaves obovate, revolute, minutely toothed, dotted beneath; corolla bell-shaped. *Br. Fl.* 1. *p.* 178. *E. Fl. v.* ii. *p.* 220. *E. Bot. t.* 598.

Dry heathy places on mountains. Plentiful on the Dublin Mountains, near Lough Bray; in Cunnamara, and mountains in the northern counties. Heaths near Dungannon; *Mr. Campbell.* A variety, with serrated and undulated leaves, was pointed out to me on the Mourne Mountains, above twenty years ago, by the late Mr. Templeton, (who also found it in a bog near Ballynahinch, in the County of Down,) agreeing with a specimen of Haller's he saw in Sir Joseph Bank's herbarium. Perhaps the same as the dwarf variety found by Mr. Murray on the Campsie and Arran hills in Scotland, mentioned by Doctor Hooker. *Fl.* May, June. ♄.—A low somewhat straggling *shrub*, with leaves resembling those of box.

3. V. *Oxycoccus*, Linn. *Marsh Whortle-Berry, Cran-Berry.* Peduncles terminal, single-flowered; leaves ovate, evergreen, glaucous beneath, their margins revolute and entire; corolla 4-parted, revolute; stem filiform. *Br. Fl.* 1. *p.* 178. *E. Fl. v.* ii. *p.* 221. *E. Bot. t.* 319.—*Oxycoccus palustris, Rich.*—*Lindl. Syn. p.* 134.

In peat bogs, especially among *Sphagnum*, or *white Bog Moss*, in various parts of the country. *Fl.* June. ♄.—*Stems* straggling, wiry, eight to ten inches long, or more. *Leaves* small. *Flowers* of a deep rose-colour. The berries are used in Dublin and elsewhere in Ireland for making tarts.

ORD. 37. CAMPANULACEÆ. *Juss.* Bell-flower Family.

Tube of the calyx adnate with the ovary; its limb 4—8-generally 5-cleft, equal, persistent. Corolla monopetalous, deciduous or marcescent, regular or irregular, 5, sometimes 4—6—8-cleft, rarely of 5 petals with broad connivent claws. Stamens inserted upon a disk which is adnate with the ovary (base of the corolla?), sometimes upon the corolla, equal in number with the segments of the corolla, and alternate with them; anthers fixed to the base, 2-celled, cells opposite, opening longitudinally, distinct or cohering. Ovary 2—or many-celled, many-seeded. Style 1; stigma 1, or generally as many as there are cells of the ovary, naked or covered by an indusium. Capsule wholly adnate with the tube of the calyx, and opening below the limb with lateral pores, or half-adnate and valvate at the extremity, the valves bearing the placentas. Seeds numerous, small, with a fleshy albumen. Embryo straight, as long as the albumen.—*Herbaceous plants or under shrubs. Leaves alternate. Flowers single, or in heads; usually purple.*

1. CAMPANULA. *Linn.* Bell-flower.

Calyx 5-cleft. *Corolla* campanulate, 5-cleft. *Stamens* 5, with the filaments broadest at the base. *Stigma* 4—or 5-parted. *Capsule* 3—5-celled, opening by perforations towards the base.—Named from the usual form of the corolla, *Campana*, a *bell.*

Pentandria. Monogynia.

1. C. *rotundifolia*, Linn. *Round-leaved Bell-flower or Harebell.* Radical leaves heart or kidney-shaped; stem leaves linear, entire. *Br. Fl.* 1. *p.* 100. *E. Fl. v.* i. *p.* 287. *E. Bot. t.* 866.

Dry and hilly pastures, borders of fields and wall-tops, abundant, sometimes varying with white flowers, instead of blue, the usual colour. *Fl.* July—Sept. ♃.—*Panicle* of few *flowers*, lax. *Flowers* drooping. Whole plant slender and graceful.

2. C. *latifolia*, Linn. *Giant Bell-flower.* Leaves roughish, ovato-lanceolate; stem unbranched, round; stalks single-flowered; fruit drooping. *Br. Fl.* 1. *p.* 101. *E. Fl. v.* i. *p.* 290. *E. Bot. t.* 302.

Moist shady woods. Woods by the river Barrow, above New Ross. *Fl.* July, Aug. ♃.—From two to three feet high. *Corolla* very large, blue, (sometimes white in gardens and in woods in Scotland.) This is the most stately of our species.

3. C. *Trachelium*, Linn. *Nettle-leaved Bell-flower.* Stem angular; leaves lanceolate, partly heart-shaped, sharply serrated, bristly as well as the calyx; stalks axillary, with few flowers. *Br. Fl.* 1. *p.* 102. *E. Fl. v.* i. *p.* 292. *E. Bot. t.* 12.

Found in a lane between Glasnevin and Finglass, above thirty years ago, by the late Doctor Brinkley, Bishop of Cloyne, according to Mr. Templeton, who also found it about the same time, by the river-side below Innistiogue, County of Kilkenny. *Fl.* July, Aug. ♃.—*Leaves* much like those of the common Nettle, whence the name.

4. C. *hederacea*, Linn. *Ivy-leaved Bell-flower.* Stem flaccid, much branched, procumbent; leaves stalked, smooth, heart-shaped, with angular lobes. *Br. Fl.* 1. *p.* 102. *E. Fl. v.* i. *p.* 293. *E. Bot. t.* 73.

Moist shady banks and open situations, on a light sandy or gravelly soil. On the Sugar-loaf Mountain, County of Wicklow; *Doctor Stokes* and *Mr. John Nuttall.* Near Bandon, County of Cork, and in Glencree, between Enniskerry and Lough Bray near the Copsewood, abundant. *Fl.* July, Aug. ♃.—A most graceful little plant, growing in lax tufts. *Peduncles* long, slender, mostly terminal. *Flowers* half an inch or more in length, at first drooping, then erect; pale purplish-blue.

ORD. 38. LOBELIACEÆ. *Lindl.* Lobelia Family.

Calyx superior, 5-lobed, or entire. Corolla monopetalous, irregular, inserted in the calyx, 5-lobed, or deeply 5-cleft. Stamens 5, inserted into the calyx alternately with the lobes of the corolla; anthers cohering; pollen oval. Ovarium inferior, with from one to three cells; ovula very numerous, attached either to the axis or the lining; style simple; stigma surrounded by a cup-like fringe. Fruit capsular, 1—or more-celled, many-seeded, dehiscing at the apex. Seeds attached either to the lining or the axis of the pericarpium; embryo straight, in the axis of fleshy albumen; radicle pointing to the hilum.—*Herbaceous plants or shrubs. Leaves alternate, without stipulæ. Flowers axillary or terminal.*

1. JASIONE. *Linn.* Sheep's-bit.

Calyx 5-cleft. *Corolla* rotate, with a very short tube, and five long linear segments. *Stigma* bifid. *Capsule* 2-celled. *Flowers* collected within a many-leaved involucre.—Name, supposed from *ἴον*, a *violet*, from the blue colour of the flowers, applied by Pliny to some esculent plant. *Pentandria. Monogynia.*

1. J. *montana*, Linn. *Annual Sheep's-bit or Sheep's Scabious.* Leaves linear, waved, hispid; peduncles solitary, elongated. *Br. Fl.* 1. *p.* 99. *E. Fl. v.* i. *p.* 296. *E. Bot. t.* 882.

Dry heathy pastures, in a light gravelly soil. *Fl.* June, July. ☉.—*Stem* six to ten inches high, branched. *Flowers* bright blue, in terminal, dense, hemispherical *heads*, surrounded by a many leaved *involucre*. *Calyx* small, superior, five-toothed. *Corolla* in five deep and narrow segments. *Anthers* united at the base.

2. LOBELIA. *Linn.* Lobelia.

Calyx 5-cleft. *Corolla* irregular, 2-lipped, cleft longitudinally on the upper side. *Anthers* united. *Stigma* hairy. *Capsule* 2—3 celled, the upper free part 2-valved.—Named in honour of *Matthias Lobel*, or *L'Obel*, a Fleming, but naturalized in England, where he published several learned botanical works. *Pentandria. Monogynia.*

1. L. *Dortmanna*, Linn. *Water Lobelia.* Leaves linear, entire, of two longitudinal cells; stem nearly naked. *Br. Fl.* 1. *p.* 99. *E. Fl. v.* 1. *p.* 297. *E. Bot. t.* 240.

Margins of lakes with clear gravelly bottoms. Plentiful at Glandelagh and Lough Dan, County of Wicklow; lake at the base of the Mourne Mountains; lakes of Killarney, &c. *Fl.* July, Aug. ♃.—*Leaves* two to three inches long, a little recurved, formed of two parallel tubes or cells. *Scape*, or almost *leafless stem*, flowering above water, a foot or more high, according to the depth of the water. *Flowers* pale blue, drooping. *Fruit* erect.

ORD. 39. VALERIANEÆ. *D C.* Valerian Family.

Tube of the calyx adnate with the ovary; limb toothed or parted, or at first involute, and afterwards expanding into a feathery pappus. Corolla tubular, funnel-shaped, often 5-lobed, rarely 3—4-lobed, the lobes obtuse, the tube equal or gibbous. or spurred at the base. Stamens 1—5, inserted into the tube of the corolla, alternate with its lobes when of the same number: anthers ovate, 2-celled. Style filiform; stigmas 2—3, distinct or combined. Fruit membranaceous or bony, indehiscent, crowned with the more or less persistent limb of the calyx, 3-celled, with two cells empty; or only one. Seed solitary, pendulous, without albumen. Embryo straight; radicle superior; cotyledons flat. *Annual or perennial herbs. Leaves opposite, without stipules, entire or pinnated.*

1. FEDIA. *Vahl.* Corn-Salad.

Calyx small, unequally toothed, crowning the fruit. *Corolla* monopetalous, 5-cleft, gibbous at the base. *Capsule* indehiscent, 3-celled, 3-seeded; two *cells* generally abortive.—Name of Adanson, but whose meaning is not accurately known: according to Smith, *Fedus* is synonymous with *Hædus*, a *kid.* *Triandria. Monogynia.*

1. F. *olitoria*, Vahl. *Common Corn-Salad, or Lamb's Lettuce.* Capsule subglobose, inflated, with three obscure inflexed teeth, glabrous; flowers capitate. *Br. Fl.* 1. *p.* 15. *E. Fl. v.* 1. *p.* 45.—*Valeriana Locusta, E. Bot. t.* 811.

Banks and corn fields, in a light soil, frequent. Corn fields at Howth; Portmarnock, Feltrum Hill, and many other parts of the country. *Fl.* April—June. ⊙.—Three inches to a foot high, dichotomous, more or less rough. *Root-leaves* spathulate, those of the *stem* oblong, obtuse, entire, or with the upper ones a little toothed. *Flowers* pale blue, in terminal compact heads, at the base of which are linear-oblong, often divided bracteas, forming a kind of *involucre.*

2. F. *dentata*, Vahl. *Smooth narrow-fruited Corn-Salad.* Capsule ovate, acuminate, glabrous, ribbed, with one large and two smaller upright teeth; flowers corymbose; peduncles with a sessile axillary flower. *Br. Fl.* 1. *p.* 15. *E. Fl. v.* 1. *p.* 45. —*Valeriana dentata, E. Bot. t.* 1370.

Corn fields and dry banks, less frequent than the last. Near Monkstown, County of Cork; *Mr. J. Drummond.* On the Curren of Larne; *Mr. Templeton.* Abundant about Oldcastle and at Lisnabrin, County of Cavan; *Rev. Mr. Halpin.* In Farnham demesne; *Mrs. E. Tenant. Fl.* June, July. ⊙.—*Leaves* narrower than in the foregoing. *Flowers* smaller, purplish, almost all from the forks of the smooth stem. *Capsules* not inflated or lobed. *Crown* of three, scarcely more, erect, unequal teeth, one much the largest.

2. VALERIANA. *Linn.* Valerian.

Calyx a thickened margin to the top of the germen, at length unfolding into a feathery *pappus. Corolla* monopetalous, 5-cleft, gibbous or spurred at the base. *Fruit* 1-seeded, crowned with the feathery *pappus.*—Name from *Valeo,* to be powerful, on account of the medicinal effects.

Triandria. Monogynia.

1. V. *rubra*, Linn. *Red Valerian.* Corolla with a long spur; stam. one; leaves ovato-lanceolate. *Br. Fl.* 1. *p.* 14. *E. Fl. v.* 1. *p.* 42. *E. Bot. t.* 1532.—*Centranthus latifolius, Dufresne, Lindl.*

Tops of old walls, occasionally. *Fl.* June—Sept. ♃.

2. V. *officinalis*, Linn. *Great wild Valerian.* Corolla gibbous at the base; leaves all pinnated; leaflets lanceolate, nearly uniform, serrated. *Br. Fl.* 1. *p.* 15. *E. Fl. v.* 1. *p.* 43. *E. Bot. t.* 698.

Ditches, sides of rivers, and woods, abundant. *Fl.* June, July. ♃. —*Roots* tuberous, warm, aromatic, and employed in medicine.

ORD. 40. DIPSACEÆ. *Juss.* Teasel Family.

Tube of the calyx adnate with the ovary: the limb various, short or elongated, entire, toothed, or often ending in hairy or feathery and pappus-like bristles. Corolla of one petal, inserted at the mouth of the tube of the calyx, rarely ringent, often somewhat unequal, 4—5-cleft. Stamens 4, inserted into the tube of the corolla, alternate with its lobes, almost always distinct: anthers 2-celled. Style filiform: stigma simple, longitudinal or capitate. Fruit indehiscent, membranaceous, or somewhat bony, crowned with the limb of the calyx, often covered by an involucellum or outer calyx, 1-celled, 1-seeded. Seed pendulous. Albumen fleshy. Embryo straight: radicle superior.—*Herbaceous plants or under shrubs. Leaves opposite or whorled. Flowers collected upon a common receptacle, and surrounded by a many-leaved involucrum.*

1. DIPSACUS. *Linn.* Teasel.

Involucellum with four sides, and eight little excavations. *Calyx* with a somewhat cyathiform limb. *Stigma* longitudinal. *Leaflets* of the involucre longer than the bracteæ. *Receptacle* with spiny paleæ.—Name from *δεψαω, to be thirsty;* the upper connate leaves containing water in their hollows. *Tetrandria. Monogynia.*

1. D. *sylvestris*, Linn. *Wild Teasel.* Leaves opposite, rarely connate; scales of the receptacle straight at the extremity; involucre curved upwards. *Br. Fl.* 1. *p.* 60. *E. Fl. v.* 1. *p.* 193. *E. Bot. t.* 1032.

Borders of fields, hedge banks, and way-sides, frequent. Plentiful at the black quarries near Clontarf Crescent, and other places on the north side of Dublin. *Fl.* July. ♂.—*Heads* large, encompassed and overtopped by the long leafy *involucrum.* This is supposed to be the origin of the cultivated Teasel, (*D. fullonum,*) which differs from it in having the leaves more regularly connate and the scales of the calyx hooked at the points.

2. SCABIOSA. *Linn.* Scabious.

Involucellum nearly cylindrical, with eight little excavations. *Calyx* with a limb consisting of five setæ, occasionally partially abortive. *Coulter.*—Name from *Scabies, leprosy;* an infusion or decoction of some of the species having formerly been employed in curing cutaneous diseases. *Tetrandria. Monogynia.*

1. S. *succisa,* Linn. *Devil's-bit Scabious.* Corolla in four equal segments; heads nearly globular; stem-leaves distantly toothed. *Br. Fl.* 1. *p.* 61. *E. Fl. v.* i. *p.* 194. *E. Bot. t.* 878.

Meadows and pastures, common. *Fl.* July, Aug. ♃.—*Root* as if cut off abruptly, or bitten, (*radix præmorsa*). *Stems* nearly simple.

Leaves hairy, rather stiff; *radical* ones ovate, mostly petiolate, those of the stem oblong. *Flowers* purplish blue, often white.

3. KNAUTIA. *Linn.* Knautia.

Involucellum compressed, with four little excavations, closely surrounding the fruit, placed on a short stalk. *Calyx* with a somewhat cup-shaped limb.—Name, in honour of *Christopher Knaut*, a botanist of Saxony, who flourished in the latter half of the seventeenth century.

Tetrandria. Monogynia.

1. K. *arvensis*, Coulter. *Field Knautia or Scabious.* Heads many-flowered; teeth of the crown very small; ciliæ of the calyx 8—16, somewhat awned. *Coulter. Br. Fl.* 1. *p.* 60.—*Scabiosa arvensis. E. Fl. v.* 1. *p.* 195. *E. Bot. t.* 659.

Pastures and corn fields, frequent. *Fl.* July. ♃.—Two to three feet high. Radical *leaves* lanceolate, slightly serrate, hairy. *Heads* of *flowers* large, convex, lilac-purple; outer *florets* large, with their segments unequal, the lower ones very large, and forming a sort of ray around the head; *inner florets* with equal segments. Sir J. E. Smith states that the fine pale purple flowers of this plant change to a most beautiful green if held for a few minutes over the smoke of tobacco.

ORD. 41. COMPOSITÆ. *Juss.* Composite Family.

Tube of the calyx adnate with the ovary; the limb entire or toothed, or resembling scales, or mostly expanded into a simple or feathery pappus, sometimes wanting. Corolla regular and funnel-shaped, or irregular and ligulate, sometimes 2-lipped, generally 4—5-toothed. Stamens 4 or 5, alternate with the teeth of the corolla: anthers cohering in a cylinder. Ovary 1, 1-celled, with a single erect ovule; style 1; stigmas simple or bifid. Fruit an achenium, crowned with the limb of the calyx or pappus. Seed erect, without albumen. Embryo straight; radicle directed to the hilum.

Tribe I. *Corymbiferæ.* Juss.

Flowers flosculous, or radiant. Receptacle membranous, or not fleshy. Stigmata not articulated with the style.

1. EUPATORIUM. *Linn.* Hemp-agrimony.

Involucre cylindrical; scales imbricated, oval-oblong. *Florets* few, all tubular. *Receptacle* naked. *Pappus* pilose.—Name; from *Eupator*, the surname of Mithridates, King of Pontus, who brought this plant into use.

Syngenesia. Æqualis.

1. E. *cannabinum*, Linn. *Common Hemp-agrimony.* Leaves in three, or five, deep lanceolate segments; the middle one longest. *Br. Fl.* 1. *p.* 354. *E. Fl. v.* iii. *p.* 400. *E. Bot. t.* 428.

Banks of rivers and watery places, common. *Fl.* July, Aug. ♃.—*Stem* three to four feet high, branched. *Leaves* downy. *Flowers* very numerous, thickly crowded in terminal *corymbs*, of a pale reddish purple. *Style* longer than the *corolla*, deeply cleft. *Plant* slightly aromatic.

2. INULA. *Linn.* Elecampane.

Involucre imbricated, its *scales* spreading; outer ones, especially, foliaceous. *Anthers* with bristles at their base. *Receptacle* naked. *Pappus* simple. *Flowers* yellow.—Name; said to be the same as *Helenium*, having sprung from the tears of *Helen*. *Syngenesia. Superflua.*

1. I. *Helenium*, Linn. *Elecampane.* Leaves ovate, rugged, clasping the stem, downy beneath. *Br. Fl.* 1. *p.* 362. *E. Fl. v.* iii. *p.* 440. *E. Bot. t.* 1546.

Moist meadows, rare. At Calnafersy, near Killarney. On high ground between Miltown and Tralee; *Dr. George Clarke.* Sea-shore near Bantry, and by the Sullane river, County of Cork; *Mr. J. Drummond.* Banks of a rivulet near Glenarm; *Mr. Templeton.* Devinish Island, near Enniskillen; *Mr. J. Johnston. Fl.* July, Aug. ♃.—Three to five feet high. *Flowers* large, terminal, solitary, with many narrow, tricuspidate, yellow *rays*.

3. LIMBARDA. *Adans.* Golden-Samphire.

Involucre with imbricated, narrow *scales*. *Anthers* with bristles at the base. *Receptacle* naked. *Pappus* simple, rough.—Named from *Limbarde*, as the plant is called in some parts of France. *Syngenesia. Superflua.*

1. L. *crithmoides*. *Golden-Samphire.* Leaves linear, fleshy, generally 3-toothed at the extremity. *Br. Fl.* 1. *p.* 363.—*Limbarda tricuspis*, *Cassini*.—*Lindl.*—*Inula crithmoides*, *Linn.*—*E. Fl. v.* iii. *p.* 442. *E. Bot. t.* 68.

Sea-shore on the south side of the Hill of Howth, in muddy places; on steep banks, and in crevices of rocks, below the Rev. Doctor Mac Donnell's cottage, on the south side of Killiney Hill, and on Lambay Island, abundant. *Fl.* Aug. Sept. ♃.—One foot high, a little branched at the summit, each branch bearing a solitary *flower*. In habit very different from the preceding genus, as it is from the following.

4. PULICARIA. *Gertn.* Flea-bane.

Involucre hemispherical, closely imbricated with narrow scales. *Anthers* with bristles at the base. *Pappus* double; *outer* one short, cup-shaped, membranous, toothed: *inner* long, rough. *Flowers* yellow.—Name; *pulex*, a *flea*, an insect which this plant is supposed to drive away by its powerful smell. *Syngenesia. Superflua.*

1. P. *dysenterica*, Cassini. *Common Flea-bane.* Leaves oblong, downy, clasping the stem with their heart-shaped base; stem woolly, panicled; scales of the involucre bristle-shaped, hairy. *Br. Fl.* 1. *p.* 363.—*Inula dysenterica*, *Linn.*—*E. Fl. v.* iii. *p.* 440. *E. Bot. t.* 1115.

Moist and watery soils, common near Dublin and many other places. *Fl.* Aug. ♃.—About a foot high, terminating in a corymb of yellow flowers. Linnæus, in *Fl. Suec. ed.* 2. *p.* 294, records, on the authority of General Keith, that it cured the Russian army of dysentry—hence the specific name.

5. ASTER. *Linn.* Starwort.

Involucre imbricated, the lowermost *scales* spreading (except in *A. Tripolium*). *Receptacle* naked. *Pappus* sessile, simple. *Florets* of the *disk* yellow, of the *ray* purple or white. —Name; *Aster* a *star*, which the flowers resemble.
Syngenesia. Superflua.

1. A. *Tripolium*, Linn. *Sea Starwort.* Herbaceous, corymbose; leaves lanceolate, entire, fleshy, smooth, obscurely 3-ribbed; scales of involucre obtuse, somewhat membranous. *Br. Fl.* 1. *p.* 362. *E. Fl. v.* iii. *p.* 436. *E. Bot. t.* 87.

Salt marshes, frequent. *Fl.* Aug. Sept. ♃.—One to two feet high, somewhat glaucous. *Flowers* rather large, disk yellow, rays blue, in some flowers wanting.

6. ERIGERON. *Linn.* Flea-bane.

Involucre imbricated with numerous linear *scales*. *Receptacle* naked. *Florets* of the *ray* numerous, very narrow, (mostly of a different colour from the disk.) *Pappus* simple.—Name; *ερι*, *early*, and *γερων*, *an old man:* from the bald heads of the receptacles, after the flowers and fruit have fallen. *Syngenesia. Superflua.*

1. E. *acris*, Linn. *Blue Flea-bane.* Stem nearly racemose; stalks mostly single-flowered; leaves lanceolate or tongue-shaped, sessile; radius erect, scarcely taller than the seed down. *Br. Fl.* 1. *p.* 358. *E. Fl. v.* iii. *p.* 442. *E. Bot. t.* 158.

Dry gravelly pastures and old walls. Gravelly banks near the Grand Canal, a mile from Lucan; banks of the Dodder above Templeogue, and various other places. *Fl.* Aug. ♂.—One foot high or more; whole plant scabrous, hispid, erect, panicled above and leafy. *Flowers* pedunculated, from the axils of their leaves, and terminal.

Leaves below tapering into a footstalk. *Florets* of the *disk* yellow, of the *ray* ligulate, purplish. *Pappus* very long and tawny.

7. Solidago. *Linn.* Golden-rod.

Involucre closely imbricated. *Receptacle* naked, pitted, down simple. *Florets* of the ray few.—Name; *solidari*, to *unite*, from the vulnerary qualities of the plant.
Syngenesia. Superflua.

1. S. *Virgaurea*, Linn. *Common Golden-rod.* Cauline leaves lanceolate, the lower ones elliptical; racemes panicled, erect, crowded. *Br. Fl.* 1. *p.* 362. *E. Fl. v.* iii. *p.* 438. *E. Bot. t.* 301.

β. small, with broader radical leaves. *S. cambrica, Huds.*

Woods and heaths, frequent. β. on Mangerton and other mountains in Kerry, &c. *Fl.* July—Sept. ♃.—Lower *leaves* broad, stalked; very variable in regard to size, and the more or less compact *inflorescence.*

8. Gnaphalium. *Linn.* Cudweed.

Involucre imbricated, with (often) coloured, membranous scales. *Receptacle* naked. *Florets* of the circumference subulate; some of the centre occasionally abortive. *Pappus* rough or feathery.—Name; *γναφαλον*, *soft down*, or *wool*, with which the leaves are clothed. *Syngenesia. Superflua.*

* *Flowers diœcious.* (Antennaria. *Gærtn.*)

1. G. *dioicum*, Linn. *Mountain Cudweed.* Shoots procumbent; stems simple; corymbs crowded; root-leaves spathulate; flowers diœcious; inner scales of the involucre elongated, obtuse, coloured. *Br. Fl.* 1. *p.* 356. *E. Fl. v.* iii. *p.* 413. *E. Bot. t.* 267.

Mountain heaths, and sandy commons, frequent. Plentiful at Portmarnock, and on mountainous heaths all over the country. *Fl.* June, July. ♃.—*Flowering stems* three or four inches high. *Leaves* greenish above, white beneath. Inner *scales* of the involucre often rose-coloured, especially in the fertile flower.

2. G. *margaritaceum*, Linn. *American Cudweed, Pearly Everlasting.* Herbaceous; stem branched above; leaves linear-lanceolate, acute, alternate, cottony especially beneath; flowers corymbose, level-topped. *Br. Fl.* 1. *p.* 356. *E. Fl. v.* iii. *p.* 412. *E. Bot. t.* 2018.

On old ditch banks near Miltown, County of Kerry. Near Bandon; *Mr. J. Drummond. Fl.* Aug. ♃.

* * *Flowers perfect.*

3. G. *sylvaticum*, Linn. *Highland Cudweed.* Stem simple,

nearly erect, downy; flowers axillary, forming an interrupted leafy spike; leaves linear-lanceolate, downy. *Br. Fl.* 1. *p.* 357.

α. leaves woolly on both sides. *G. sylvaticum*, *E. Bot. t.* 913. *E. Fl. v.* iii. *p.* 414.

β. leaves nearly glabrous above, spike longer, more interrupted. *G. rectum*, *Huds.*—*E. Bot. t.* 124. *E. Fl. v.* iii. *p.* 415.

α. On Lettery mountain, Cunnamara. β. on dry upland pastures, and sometimes on low grounds, not unfrequent all over the country. *Fl.* Aug. ♃.—*Scales* of the involucre oblong, shining, with a broad brown border.

4. G. *uliginosum*, Linn. *Marsh Cudweed.* Stem very much branched, diffuse, woolly; leaves linear-lanceolate, downy; flowers in terminal crowded clusters, which are shorter than the leaves. *Br. Fl.* 1. *p.* 357. *E. Fl. v.* iii. *p.* 416. *E. Bot. t.* 1194.

Sandy and wet places; especially where water stands in winter. *Fl.* Aug. Sept. ⊙.—A span high, much branched. *Flowers* two or three together within the closely placed upper *leaves*, small, sessile, forming oblong clusters at the extremity of the branches. *Scales* of the involucre yellowish-brown, shining, glabrous.

5. G. *minimum*, Sm. *Least Cudweed.* Stem erect, branched; branches spreading; leaves lanceolate, acute, cottony; flowers conical, clustered, lateral and terminal; clusters longer than the leaves. *Br. Fl.* 1. *p.* 357. *E. Fl. v.* iii. *p.* 417. *E. Bot. t.* 1157.—*Filago minima, Linn.*

Dry gravelly places. In a field between the Dargle and Powerscourt. *Fl.* July, Aug. ⊙.—*Stems* four to six inches high, slender, branched above in a dichotomous manner. *Involucres* downy, broad at the base. *Florets* yellowish.

6. G. *germanicum*, Huds. *Common Cudweed.* Stem erect, proliferous at the summit; leaves lanceolate, downy, acute; heads globose in the axils of the branches and terminal. *Br. Fl.* 1. *p.* 358. *E. Fl. v.* iii. *p.* 418. *E. Bot. t.* 1946.—*Filago germanica, Linn.*

Sandy and gravelly places, not unfrequent. *Fl.* June, July. ⊙.—*Stem* six to eight inches high, erect, very leafy, terminated by a globular head of small, ovate *flowers*, from beneath which spring two, three, or more horizontal branches, in a proliferous manner, each terminated by a head of flowers. *Scales* of the involucre yellowish, shining, very acute, submucronate.

9. Senecio. *Linn.* Groundsel.

Involucre cylindrical, its *scales* linear, equal, with several smaller ones at the base, their tips often brown. *Receptacle*

naked. *Flowers* discoid or radiant. *Pappus* simple, sessile. —Name; *senex, an old man.* See *Erigeron.*
Syngenesia. Superflua.

* *Flowers without rays.*

1. S. *vulgaris*, Linn. *Common Groundsel.* Leaves pinnatifid, toothed, clasping at the base; flowers in clustered corymbs, destitute of a ray. *Br. Fl.* 1. *p.* 360. *E. Fl. v.* iii. *p.* 428. *E. Bot. t.* 747.

Waste ground, fields, and hedges. *Fl.* all summer. ⊙.—A span to a foot high. *Flowers* small, yellow.

* * *Flowers rayed, with the ray rolled back.*

2. S. *viscosus*, Linn. *Stinking Groundsel.* Ray revolute; leaves pinnatifid and viscid; scales of the involucre lax, hairy; stem branching, diffuse. *Br. Fl.* 1. *p.* 360. *E. Fl. v.* iii. *p.* 429. *E. Bot. t.* 32.

Waste and sandy grounds near Dublin, as well as about Cork, Belfast, and other places. *Fl.* July, Aug. ⊙.—*Stems* one to two feet high, much branched and spreading; remarkable for its viscid hairs and fetid smell.

3. S. *sylvaticus*, Linn. *Mountain Groundsel.* Ray revolute; leaves sessile, pinnatifid, lobed and toothed, often eared at the base; outer scales of the involucre very short, glabrous; stem erect, straight; flowers corymbose. *Br. Fl.* 1. *p.* 360. *E. Fl. v.* iii. *p.* 430. *E. Bot. t.* 748.

Waste grounds and dry upland mossy soils. Tittour, near Roundwood. Waste ground near Cork; *Mr. J. Drummond.* Near Larne; *Mr. Templeton. Fl.* July. ⊙.—One foot high. *Leaves* finely divided. *Plant* with a disagreeable smell, but not so powerful as *S. viscosus.*

* * * *Flowers with patent rays. Leaves pinnatifid.*

4. S. *tenuifolius*, Jacq. *Hoary Ragwort.* Ray spreading, its corollas oblong; leaves closely pinnatifid, their margins somewhat revolute, pale and downy beneath; stem erect, loosely cottony; all the fruit hairy. *Br. Fl.* 1. *p.* 361. *E. Fl. v.* iii. *p.* 432. *E. Bot. t.* 574.

Hedges and road-sides, both on the north and south side of Dublin, frequent. *Fl.* July, Aug. ♃.—Allied to the following. *Leaves* deeply pinnatifid, dark green above, whitish beneath. *Flowers* bright yellow.

5. S. *Jacobæa*, Linn. *Common Ragwort.* Ray spreading, oblong, toothed; leaves doubly pinnatifid, somewhat lyrate, with spreading, toothed, smooth segments; seeds of the disk silky. *Br. Fl.* 1. *p.* 361. *E. Fl. v.* iii. *p.* 433. *E. Bot. t.* 1130.

Way-sides and neglected pastures, too frequent. *Fl.* July, Aug. ♃.—*Stems* two to three feet high, striated, branched. *Flowers* large, golden yellow.

6. S. *aquaticus*, Huds. *Marsh Ragwort.* Ray spreading, elliptic-oblong, toothed; leaves lyrate, serrated, the lowermost obovate and undivided; fruit all smooth. *Br. Fl.* 1. *p.* 361. *E. Fl. v.* iii. *p.* 434. *E. Bot. t.* 1311.

Wet places, and by the sides of rivers and ditches. *Fl.* July, Aug. ♃.—*Flowers* larger than the last.

* * * * *Flowers rayed. Leaves undivided.*

7. S. *saracenicus*, Linn. *Broad-leaved Groundsel.* Ray spreading, nearly entire; flowers corymbose; leaves lanceolate, serrated, minutely downy; stem solid. *Br. Fl.* 1. *p.* 362. *E. Fl. v.* iii. *p.* 435. *E. Bot. t.* 2211.

Woods near Bantry; *Mr. J. Drummond.* On the ruins of Glenluce Castle, County of Antrim; *Mr. Templeton. Fl.* July, Aug. ♃.—Three to five feet high, scarcely branched, corymbose at top. A doubtful native.

10. Tussilago. *Linn.* Colt's-foot.

Involucre formed of a simple row of equal, linear *scales. Receptacle* naked. *Flowers* radiant. *Corollas* of the circumference long, linear, numerous; of the disk few. *Pappus* simple. *Scape* single flowered.—Name altered from *Tussis*, a *cough*, in the cure of which the plant has been employed.
Syngenesia. Superflua.

1. T. *Farfara*, Linn. *Colt's-foot.* Scape single flowered, imbricated with scales; leaves cordate, angular, toothed. downy beneath. *Br. Fl.* 1. *p.* 359. *E. Fl. v.* iii. *p.* 425. *E. Bot. t.* 429.

Moist and clayey soils, too abundant. *Fl.* March, April, before the leaves appear. ♃.—*Flowers* yellow; *florets* of the disk few. The leaves have been used medicinally, as an infusion, or smoked like tobacco, for the relief of asthma.

11. Petasites. *Desf.* Butter-bur.

Nearly *diœcious. Involucre* imbricated with two rows of lanceolate *scales. Flowers* not radiant. *Pappus* simple. *Scape* many-flowered.—Name, πετασος, a *covering to the head*, or an *umbrella*; from the great size of its foliage.
Syngenesia. Superflua.

1. P. *vulgaris*, Desf. *Butter-bur.* Thyrsus dense, oblong; leaves cordate, unequally toothed, downy beneath, the lobes approximate. *Br. Fl.* 1. *p.* 359.—*T. Petasites, Hoppe. E. Fl. v.* iii. *p.* 425.—*α.* Flowers sterile, bearing anthers, rarely seed.

T. Petasites, Linn.—*E. Bot. t.* 431.—*β.* Flowers fertile, bearing seed, rarely stamens. *T. hybrida, Linn.*—*E. Bot. t.* 430.

Wet meadows to which it is very injurious, and river-sides. *Fl.* April, May, before the leaves appear. ♃. *Root* extensively creeping, and thus multiplying the plant. *Leaves* very large. *Flowers* of a pale flesh colour; smaller, more lax, and in a longer thyrsus in the fertile plant. Dr. Hooker remarks, that Mr. Wilson who studies nature deeply, suggested to him the propriety of distinguishing this as a genus from *T. Farfara*, without being aware that it had been already done by Desfontaines, and confirmed by Cassini, and further states, that the early flowering of this plant induces the Swedish farmers to plant it near their bee-hives, and that we see in our gardens the bees collected on its affinities, *P. albus*, and *fragrans*; at a season when scarcely any other flowers are expanded.

12. Bellis. *Linn.* Daisy.

Involucre hemispherical, simple, its scales all equal in length. *Receptacle* naked, conical. *Pappus* none.—Named from *bellus, pretty*. *Syngenesia. Superflua.*

1. B. *perennis*, Linn. *Common Daisy.* Scape naked, single-flowered; leaves spathulate, obovate, crenulated. *Br. Fl.* 1. *p.* 365. *E. Fl. v.* iii. *p.* 447. *E. Bot. t.* 424.

Pastures, frequent. *Fl.* from the early spring to the end of autumn. ♃.

13. Chrysanthemum. *Linn.* Ox-eye.

Involucre hemispherical, imbricated with scales whose margins are membranaceous. *Receptacle* naked. *Pappus* none.—Name; χρυσος, *gold*, and ανθος, a *flower*, from the colour of the blossoms in some of the species.

Syngenesia. Superflua.

1. C. *Leucanthemum*, Linn. *Great Ox-eye Daisy.* Leaves clasping the stem, oblong, obtuse, cut, pinnatifid at the base; radical ones obovate, stalked. *Br. Fl.* 1. *p.* 365. *E. Fl. v.* iii. *p.* 449. *E. Bot. t.* 601.

Dry pastures, abundant. *Fl.* June, July. ♃.—*Stems* 1—2 feet high. *Flowers* large, their *disk* yellow, the *ray* white.

2. C. *segetum*, Linn. *Corn Marigold, yellow Ox-eye.* Leaves clasping the stem, glaucous; jagged upwards; toothed at the base. *Br. Fl.* 1. *p.* 365. *E. Fl. v.* iii. *p.* 449. *E. Bot. t.* 540.

Corn fields, frequent. *Fl.* June—Aug. ⊙.—One foot or more high. *Flowers* large, deep yellow.

14. Pyrethrum. *Hall.* Feverfew.

Involucre hemispherical, imbricated with scales whose margins are membranaceous. *Receptacle* naked. *Fruit* crowned with a membranaceous border.—Flowers *with a yellow disk and white ray.*—This genus is nearly the same as the last.—Named from its resemblance to the πυρεθρον of Dioscorides, so called from πυρ, *fire,* on account of its acrid roots.

Syngenesia. Superflua.

1. P. *Parthenium,* Sm. *Common Feverfew.* Leaves stalked, compound, flat; leaflets ovate, cut, the uppermost confluent; flowerstalks corymbose; stem erect; ray shorter than the diameter of the disk. *Br. Fl.* 1. *p.* 365. *E. Fl. v.* iii. *p.* 451. *E. Bot. t.* 1231.—*Matricaria Parthenium, Linn.*

Waste places, frequent about Dublin. On limestone rocks near Belfast; *Mr. Templeton. Fl.* July. ♃.—One foot to two feet high, branched. *Disk* of the *flowers* yellow, the *ray* very short, white.—*Plant* bitter and tonic.

2. P. *inodorum,* Sm. *Corn Feverfew, or scentless Mayweed.* Leaves sessile, bipinnatifid, in numerous, capillary, pointed segments; stem branched, spreading. *Br. Fl.* 1. *p.* 365. *E. Fl. v.* iii. *p.* 452. *E. Bot. t.* 676.

Fields and way-sides, common. *Fl.* Aug.—Oct. ⊙.—*Stem* about one foot high. *Flowers* large, upon long naked peduncles. *Disk* very convex; *ray* large. *Plant* slightly aromatic.

3. P. *maritimum,* Sm. *Sea Feverfew.* Leaves sessile, bipinnatifid, fleshy, pointless, convex above, keeled beneath; crown of the seeds lobed; stems diffuse. *Br. Fl.* 1. *p.* 366. *E. Fl. v.* iii. *p.* 452. *E. Bot. t.* 971.

Rock-savage near Cork; *Mr. J. Drummond.* Near the quay of Killeleagh; *Mr. Templeton.* Derry coast; *Mr. D. Moore.* Sea side near the base of Brandon, County of Kerry. *Fl.* July. ♃.—It is perennial, and the flowers are smaller than those of *P. inodorum;* yet as Dr. Hooker remarks, in the opinion of many acute Botanists it can only be considered a maritime variety of it.

15. Matricaria. *Linn.* Wild Chamomile.

Involucre hemispherical, or nearly plane, imbricated with scales whose margins are membranaceous. *Receptacle* naked, almost cylindrical. *Pappus* none.—Named from its reputed medical virtues. *Syngenesia. Superflua.*

1. M. *Chamomilla,* Linn. *Wild Chamomile.* Leaves glabrous, bipinnatifid, the segments capillary; involucre nearly plane, its scales obtuse. *Br. Fl.* 1. *p.* 366. *E. Fl. v.* iii. *p.* 454. *E. Bot. t.* 1232.

Corn fields and waste ground, said to have been found near Raheny. Near Cork; *Mr. J. Drummond.* In a field at Malone, near Belfast; *Mr. Templeton. Fl.* Aug. ⊙.—*Stem* about a foot high, erect and branched. *Flowers* with a conical disk: the rays very obtuse, truncate and toothed.—This has a bitter taste, and a faint but aromatic smell, not unlike that of the true *chamomile, Anthemis nobilis.*

16. Artemisia. *Linn.* Wormwood, Mugwort.

Involucre ovate or rounded, imbricated. *Receptacle* naked or hairy. *Florets* of the ray awl-shaped. *Pappus* none.—Named from *Artemis,* the Diana of the Greeks.

Syngenesia. Superflua.

1. A. *maritima,* Linn. *Sea Wormwood.* Erect; leaves downy, bipinnatifid, with linear segments; flowers in racemes, oblong; receptacle naked. *Hooker. Br. Fl.* 1. *p.* 355.

α. racemes drooping. *A. maritima, E. Bot. t.* 1706. *E. Fl. v.* iii. *p.* 407.

β. racemes erect.—*A. gallica, Willd.*—*E. Bot. p.* 1706. *t.* 1001. *(A. marit.)*

Sea shores and in salt marshes, where the two *varieties* may be seen growing together, and sometimes from the same root. *Hooker.* On the sutten side of Howth, and sea shore opposite Portran the seat of George Evans, Esq. abundant. *Fl.* Sept. ♃.

2. A. *Absinthium,* Linn. *Common Wormwood.* Leaves bipinnatifid, clothed with short silky down; segments lanceolate; flowers hemispherical, drooping; receptacle hairy. *Br. Fl.* 1. *p.* 355. *E. Fl. v.* iii. *p.* 408. *E. Bot. t.* 1230.

Waste places and about villages, in dry soil in many parts of the country. Plentiful near the town of Howth. At Cape-Clear island; *Mr. J. Drummond. Fl.* Aug. ♃.—One to 1½ foot high, erect. *Panicle* of *flowers* erect, leafy. *Floral-leaves* undivided. *Flowers* dingy yellow, rather large, hemispherical; *florets* of the *ray* very short.—Aromatic and bitter, and has been much employed in medicine.

3. A. *vulgaris,* Linn. *Mugwort.* Leaves pinnatifid, their segments white and downy beneath; flowers somewhat racemed, ovate. *Br. Fl.* 1. *p.* 356. *E. Fl. v.* iii. *p.* 409. *E. Bot. t.* 978.

Hedges and waste places, common. *Fl.* Aug. ♃.—*Stems* 3—4 feet high, furrowed. *Segments* of the *leaves* deeply cut, dark green above, white beneath. *Flowers* woolly, brownish.

17. Tanacetum. *Linn.* Tansy.

Involucre hemispherical, imbricated. *Receptacle* naked. *Florets* of the ray trifid, obsolete, sometimes wanting. *Fruit* crowned with a membranous margin or *pappus.*—Name, altered from *Athanasia,* being *a, not,* and *θανατος, death,* or that which does not easily fade. *Syngenesia. Superflua.*

1. T. *vulgare,* Linn. *Common Tansy.* Leaves bipinnatifid, inciso-serrate, naked. *Br. Fl.* 1. *p.* 355. *E. Fl. v.* iii. *p.* 405. *E. Bot. t.* 1229.

Borders of fields, road sides, and hilly pastures; generally near towns and villages. *Fl.* Aug. ♃.—One to three feet high. *Flowers* in a terminal *corymb.* Whole plant bitter and aromatic, formerly much used in medicine, and for domestic purposes. The curled variety common in gardens is considered the mildest and most wholesome for use.

18. ANTHEMIS. *Linn.* Chamomile.

Involucre hemispherical, imbricated, with nearly equal *scales,* whose margins are membranaceous. *Receptacle* convex, chaffy. *Fruit* crowned with a membranaceous border or *pappus.*—Name; *ανθεμον,* a *flower,* from the profusion of its blossoms. *Syngenesia. Superflua.*

1. A. *nobilis,* Linn. *Common Chamomile.* Leaves bipinnate, the segments linear-subulate, a little downy; scales of the receptacle membranaceous, scarcely longer than the disk. *Br. Fl.* 1. *p.* 366. *E. Fl.* iii. *p.* 456. *E. Bot. t.* 980.

Sandy open fields near Calnafersy, Killarney, and other places in the County of Kerry. Southern and western parts of the County of Cork; *Mr. J. Drummond.* On Knock-Cree, near Lough Bray, County of Wicklow; *Mr. James Gunning.* Derry; *Mr. D. Moore. Fl.* Aug. ♃.—*Stems* about a foot long, procumbent and much branched, each branch terminated by a single *flower,* whose *disk* is yellow, at length conical, and ray white. The whole plant is intensely bitter, highly aromatic, and much used in medicine. "Its principal virtues are supposed to reside in the *involucre* or *common calyx* which surrounds the numerous *florets* in each head, as it contains an essential oil. The variety with double *flowers* whose yellow tubular florets are entirely, or partially, transformed into white ligulate ones, is commonly cultivated in gardens for use; although the flowers of those in the natural state are now acknowledged to be stronger." *Smith.*

2. A. *arvensis,* Linn. *Corn Chamomile.* Leaves bipinnatifid, their segments linear-lanceolate, pubescent; receptacle conical, its scales lanceolate; fruit crowned with an entire pappus. *Br. Fl.* 1. *p.* 367. *E. Fl. v.* iii. *p.* 457. *E. Bot. t.* 602.

Corn fields and waste ground, but not common. In the Phœnix Park near the Hibernian School, and near Lambeg, County of Down; *Mr. Templeton. Fl.* July, Aug. ⊙.—*Stem* upright, much branched, and as well as the *leaves,* hoary with down; each branch terminating with a single *flower,* whose *disk* is yellow, the *ray* broad and white.

3. A. *Cotula,* Linn. *Stinking Chamomile.* Leaves bipinnatifid, their segments subulate; receptacle conical, its scales setaceous; pappus none. *Br. Fl.* 1. *p.* 367. *E. Fl. v.* iii. *p.* 458. *E. Bot. t.* 1772.

Waste places, corn fields, and by way sides. *Fl.* July, Aug. ⊙.—*Stem* a foot or more high, glabrous. *Flowers* solitary, terminal, their *disk* convex, pale yellow, *ray* rather large, white.—The whole plant has a fetid smell, and is said to blister the hands of those who gather it. When examined with a microscope, it is found to be sprinkled all over with little glands, in which the acrid matter is probably lodged. *Hooker.*

19. ACHILLÆA. *Linn.* Yarrow.

Involucre ovate, imbricated. *Receptacle* plane, chaffy. *Florets* of the ray 5—10, roundish, obcordate. *Pappus* none.—Name; its healing virtues were said to be first discovered by Achilles. *Syngenesia. Superflua.*

1. A. *Ptarmica*, Linn. *Sneeze-wort.* Leaves linear-lanceolate, acuminate, sharply serrated. *Br. Fl.* 1. *p.* 367. *E. Fl. v.* iii. *p.* 460. *E. Bot. t.* 757.

Moist meadows and pastures; especially in mountainous districts. *Fl.* July, Aug. ♃.—*Stem* 1—3 feet high, erect, terminating in a rather large *corymb*, the *disk* as well as the *ray* of whose *flowers* is white.—When dried and pulverized, the plant has been employed to excite sneezing.

2. A. *Millefolium*, Linn. *Common Yarrow or Milfoil.* Leaves bipinnate, slightly hairy, their segments linear, toothed, acute; stems furrowed. *Br. Fl.* 1. *p.* 367. *E. Fl. v.* iii. *p.* 462. *E. Bot. t.* 758.

Pastures and way sides, common. *Fl.* all the summer. ♃.—*Flowers* small, white, sometimes rose-coloured.

3. A. *tomentosa*, Linn. *Woolly yellow Milfoil or Yarrow.* Leaves bipinnatifid, woolly, the segments crowded, linear, acute; corymbs repeatedly compound. *Br. Fl.* 1. *p.* 368. *E. Fl. v.* iii. *p.* 462. *E. Bot. t.* 2532.

Said to grow in dry hilly pastures in some parts of Scotland. The late Sir James Smith states, that he received it also from Ireland, but does not mention the name of the person who sent it, or where it was found. *Fl.* Aug. ♃.

20. XANTHIUM. *Linn.* Bur-weed.

Barren fl. Involucre of few scales, with many small, capitate *flowers*, upon a common receptacle. *Calyx* none. *Corolla* obovate, sessile. *Anther* terminating a tube which is inserted at the base of the corolla. *Germen* none. The rudiment of a *style*. *Fertile fl. Involucre* single, prickly, with two beaks, entirely enclosing two flowers; the two *stigmas* only protruded from small apertures within the beaks. *Calyx* none. *Corolla* none. *Fruit* 1-seeded, included in the enlarged and hardened *involucre*.—Name, ξανθος, *yellow*, or *fair*, because an infusion of it was supposed to improve the colour of the hair. *Monœcia. Pentandria.*

1. X. *strumarium*, Linn. *Broad-leaved Bur-weed.* Stem unarmed; leaves cordate, three ribbed at the base; beaks of the fruit straight, the prickles hooked. *Br. Fl.* 1. *p.* 403. *E. Fl. v.* iv. *p.* 186. *E. Bot. t.* 2544.

Said to have been found near Listowel, County of Kerry. Vide, Smith's history of that county. As I found many of the plants mentioned by him in the places he found them, I have little doubt of his being correct in this instance, although I did not find it when passing rather hurriedly through that part of the country. *Fl.* Aug. Sept. ⊙.

21. Bidens. *Linn.* Bur-marigold.

Involucre of many scales, outer ones or *bracteas* at the base foliaceous. *Receptacle* plane, chaffy. *Corollas* sometimes radiant. *Fruit* crowned with from 2—5 persistent *awns*, which are rough with minute, deflexed bristles.—Name; *bis*, *double*, and *dens*, a *tooth ;* from the two awns or teeth which crown the fruit. *Syngenesia. Æqualis.*

1. B. *cernua*, Linn. *Nodding Bur-marigold.* Flowers drooping; bracteas lanceolate, entire, (longer than the involucre); leaves lanceolate, serrated, undivided; bristles of the fruit about three, erect. *Br. Fl.* 1. *p.* 353. *E. Fl. v.* iii. *p.* 399. *E. Bot. t.* 1114.

Sides of ditches, rivulets and lakes, frequent. *Fl.* June—Aug. ⊙.—One to two feet or more high, branched and slightly hispid. *Leaves* glabrous, deeply serrated. *Flowers* large, greenish-yellow.

2. B. *tripartita*, Linn. *Trifid Bur-marigold.* Leaves tripartite; leaflets lanceolate, deeply serrated; bristles of the pericarp 2—3. *Br. Fl.* 1. *p.* 354. *E. Fl. v.* iii. *p.* 399. *E. Bot. t.* 1113.

Marshy places, sides of pools and lakes, not unfrequent, in various parts of the country. *Fl.* July. ⊙.—Readily distinguished by its deeply serrated dark green leaves, which are divided into three or five deep segments. *Flowers* smaller than the last, slightly drooping.

Tribe II. *Cynarocephalæ.* Juss.

Florets all tubular. Receptacle paleaceous. Stigma articulated with the apex of the style. Leaves usually spiny.

22. Saussurea. *De Cand.* Saussurea.

Involucre oblong, imbricated with unarmed *scales*. *Receptacle* setose or chaffy. *Pappus* double, sessile; *exterior* of short, rough bristles, persistent; *interior* feathery, united at the base and deciduous.—Named in honour of the two *Saussures*, Father and Son. *Syngenesia. Æqualis.*

1. S. *alpina*, De Cand. *Alpine Saussurea.* Leaves toothed, cottony beneath, lanceolate, those of the root ovato-lanceolate, stalked; flowers in a clustered umbel. *Br. Fl.* 1. *p.* 349.—*Serratula alpina, Linn. E. Bot. t.* 599. *E. Fl. v.* iii. *p.* 383.

Moist alpine rocks. Cliffs near the summit of Brandon mountain County of Kerry. 1804. *Fl.* Aug. ♃.—*Stem* 8 to 12 inches high, erect, simple, woolly. *Leaves* few upon the *stem*. *Flowers* rather large, purple.

23. Cnicus. *Linn.* Plume-thistle.

Involucre tumid, imbricated with spinous scales. *Receptacle* hairy. *Pappus* deciduous, feathery.—Name from κνιζω, to *prick* or *wound*. *Syngenesia. Æqualis.*

* *Leaves decurrent.*

1. C. *lanceolatus*, Willd. *Spear Plume-thistle.* Leaves decurrent, hispid, pinnatifid, their segments generally two-lobed, spreading, spinous; involucres ovate, tomentose; their scales lanceolate, spreading. *Br. Fl.* 1. *p.* 351. *E. Fl. v.* iii. *p.* 388. —*Carduus lanceolatus, Linn. E. Bot. t.* 107.

Way-sides and pastures, common. *Fl.* July, Aug. ♂.—Three to four feet high. *Leaves* downy beneath; their points long and very sharp. *Flowers* standing singly, large, purple, rarely white.

2. C. *palustris*, Willd. *Marsh Plume-thistle.* Leaves decurrent, hispid, pinnatifid, spinous; involucres ovate, clustered, their scales ovato-lanceolate, mucronate, appressed. *Br. Fl.* 1. *p.* 351. *E. Fl. v.* iii. *p.* 388.—*Carduus palustris, Linn. E. Bot. t.* 974.

Moist meadows and in ditches by way-sides, frequent. *Fl.* July. ♂. —Four to six feet high, very full of rather short spines, erect. Remarkable for its clustered heads of *flowers*, whose *involucres* have the *scales* broad, appressed, keeled and mucronated.

* * *Leaves sessile or nearly so.*

3. C. *arvensis*, Hoffm. *Creeping Plume-thistle.* Leaves sessile, pinnatifid, spinous; stem panicled; involucre ovate, its scales appressed, mucronated. *Br. Fl.* 1. *p.* 351. *E. Fl. v.* iii. *p.* 389.—*Carduus arvensis, Curt. E. Bot. t.* 975.—*Serratula arvensis, Linn.*

Fields and by way-sides, too abundant. *Fl.* July. ♃.—One to three feet high. *Root* very creeping. *Stem* angular, but not winged.

4. C. *Forsteri*, Sm. *Branching Bog Plume-thistle.* Leaves slightly decurrent, pinnatifid, spinous, downy beneath; stem panicled, hollow; involucre ovate, rather cottony; outer scales spinous. *Br. Fl.* 1. *p.* 351. *E. Fl. v.* iii. *p.* 390.

In a meadow in Garvagh demesne, and by the side of the river Bann below Coleraine; *Mr. D. Moore. Fl.* July, Aug. ♃.—"The *fructification* most accords with that of the last two species, while the *herbage* and *habit* approach some of the following, or rather the exotic *Cnicus rivularis. Willd.*" *Sm.*—Perhaps only a hybrid between *C. palustris* and *C. pratensis*, as Mr. Borrer remarks.

5. C. *eriophorus*, Willd. *Woolly-headed Plume-thistle.* Leaves sessile, pinnatifid, every other segment pointing upwards, spi-

nous, scabrous; involucres sphærical, woolly. *Br. Fl.* 1. *p.* 351. *E. Fl. v.* iii. *p.* 390.—*Carduus eriophorus, Linn. E. Bot. t.* 386.

Sandy fields, rare, near Londonderry; *Mr. Nuttall. Fl.* July. ♂.—*Stems* much branched, three feet high, the stoutest of the genus, furrowed. *Leaves* acuminated, white and downy beneath; their lobes alternately pointing upwards and downwards, and terminated by sharp *spines*. *Involucre* very large, its *scales* linear, mucronate, very much interwoven with a woolly substance.

6. C. *pratensis*, Willd. *Meadow Plume-thistle.* Upper leaves sessile, lanceolate, soft, waved at the edge, and unequally spinous, pubescent, cottony beneath; flowers mostly solitary. *Br. Fl.* 1. *p.* 352. *E. Fl. v.* iii. *p.* 398.—*Carduus pratensis, Huds.*—*E. Bot. t.* 177.

Low wet meadows, more rarely in high boggy grounds, in various parts of the country. Glen-Cree, County of Wicklow, and near Castle-Connel, County of Limerick. Near Dungiven and elsewhere in Derry; *Mr. Templeton*. Plentiful in the County of Fermanagh; *Mr. J. Johnston. Fl.* July. ♃.—A foot or more high. *Leaves* waved, toothed, and spiny. *Flowers* solitary. *Scales* of the *involucre* with short spines, lanceolate, closely imbricated, cobwebbed.

24. CARLINA. *Linn.* Carline Thistle.

Involucre imbricated, tumid; the *outer scales* with numerous spines, the *inner* ones coloured, spreading, membranous. *Receptacle* chaffy. *Pappus* feathery.—Name; the same as *Carolina*, from a tradition that the root was shown by an angel to Charlemagne, as a remedy for the plague which prevailed in his army. *Syngenesia. Æqualis.*

1. C. *vulgaris*, Linn. *Common Carline Thistle.* Stem many-flowered, corymbose, pubescent; leaves lanceolate, unequally spinous and sinuated, downy beneath. *Br. Fl.* 1. *p.* 353. *E. Fl. v.* iii. *p.* 397. *E. Bot. t.* 1144.

Dry hilly pastures, fields, and sandy commons. Plentiful on Howth, Portmarnock and other places near Dublin. Little-island, near Cork; *Mr. J. Drummond. Fl.* June. ♂.—One foot high; very spinous, but the spines generally short. *Ext. scales* or *leaflets* of the *involucre* much resembling the *leaves*, but smaller; *inner ones* linear, membranous, yellow, entire, spreading and forming an horizontal ray around the purplish florets. *Anthers* with two bristles at the base.

25. ARCTIUM. *Linn.* Burdock.—LAPPA. *Tourn.*

Involucre globose, each of its scales with an incurved hook at the extremity. *Receptacle* chaffy. *Pappus* simple.—Name, αρκτος, a *bear*, from the coarse texture of the involucres. *Syngenesia. Æqualis.*

1. A. *Lappa*, Linn. *Common Burdock.* Leaves cordate, stalked. *Br. Fl.* 1. *p.* 349.

α. calyx glabrous. *A. Lappa*, *E. Bot.* *t.* 98. *E. Fl.* *v.* iii. *p.* 380.

β. calyx with a cobweb-like down. *A. Bardana*, *Willd.*—*E. Bot.* *t.* 2478. *E. Fl.* *v.* iii. *p.* 381.

Waste places and way-sides, common. *Fl.* July, Aug. ♂.—Three feet or more high. *Radical leaves* very large, and often slightly toothed. *Involucre* with hooked scales which fasten themselves most pertinaciously to clothes and the coats of animals when they come in contact with them. These *scales* are sometimes glabrous, and occasionally have a more or less cottony substance interwoven with them; whence two species have been established by some authors. *Flowers* purple.

26. Centaurea. *Linn.* Knapweed, Blue-bottle, Star-thistle.

Involucre imbricated. *Receptacle* bristly. *Pappus* simple or none. *Corollas* of the *ray* funnel-shaped, irregular, longer than those of the *disk.*—Name; with this plant it is said the *Centaur*, Chiron, cured himself of a wound received in the foot from Hercules. *Syngenesia.* *Frustranea.*

1. C. *Jacea*, Linn. *Brown radiant Knapweed.* Scales of of the involucre radiant, torn, the outer pinnatifid; leaves linear-lanceolate, the lower ones broader and toothed; flowers radiant; pappus very short, in a single row. *Br. Fl.* 1. *p.* 368. *E. Fl.* *v.* iii. *p.* 465. *E. Bot.* *t.* 1678.

In a field near Belfast, very sparingly; *Mr. Templeton.* Base of Carig mountain, near Kenmare; *Doctor Taylor.* Dry gravelly bank, near Enagh Lough, County of Derry; *Mr. D. Moore.* *Fl.* Aug. Sept. ♃.—Lower *leaves* obovato-lanceolate, petiolated, the upper *ones* entire, sessile. *Scales* of the *involucre* pale brown, shining, the outer *ones* deeply pinnatifid, the inner or uppermost torn. *Florets* very numerous, spreading, purple.

2. C. *nigra*, Linn. *Black Knapweed.* Scales of the involucre ovate, fringed with capillary teeth; lower leaves angular, lyrate; upper ones lanceolate; ray wanting; pappus very short, tufted. *Br. Fl.* 1. *p.* 368. *E. Fl.* *v.* iii. *p.* 465. *E. Bot.* *t.* 278.

Meadows and pastures, frequent. *Fl.* June—Aug. ♃.—*Stem* 2—3 feet high. *Leaves* scabrous. *Scales* of the *involucre* almost black, the teeth brown. *Florets* purple, numerous, all fertile.

3. C. *Cyanus*, Linn. *Corn Blue-bottle.* Scales of the involucre serrated; leaves linear, entire, the lowermost toothed. *Br. Fl.* 1. *p.* 368. *E. Fl.* *v.* iii. *p.* 466. *E. Bot.* *t.* 277.

Corn fields. *Fl.* July, Aug. ⊙.—Two or three feet high, covered with a loose cottony down, especially on the *stems* and the under sides of the *leaves.* *Florets* of the *disk* small, purple; those of the ray few, larger, bright blue, spreading. *Scales* of the *involucre* greenish, the margin brown. In gardens where it is much cultivated it varies very much in the colour of its flowers; hence its name in the seed shops "Bottles of colours."

4. C. *Scabiosa*, Linn. *Greater Knapweed.* Scales of the involucre ciliated, ovate, downy; leaves pinnatifid, roughish, the segments lanceolate, acute. *Br. Fl.* 1. *p.* 369. *E. Fl. v.* iii. *p.* 467. *E. Bot. t.* 56.

Dry banks and fields, frequent. *Fl.* July—Aug. ♃.—Two to three feet high, erect, much branched. *Involucres* globose, very large, their *scales* cottony, almost black, the fringe pale.

5. C. *solstitialis*, Linn. *Yellow Star-thistle, St. Barnaby's thistle.* Flowers terminal, solitary; scales of the involucre doubly spinous; stem winged from the decurrent lanceolate, unarmed leaves; radical leaves lyrate. *Br. Fl.* 1. *p.* 369. *E. Fl. v.* iii. *p.* 349. *E. Bot. t.* 243.

Sandy fields. This was found in July 1821, in a sandy field at Portmarnock, by Doctor Charles Croker, when on a botanical excursion with me to that interesting place, but as the field where it grew in considerable quantity, has since been ploughed up, it has not been found there of late, and was probably introduced among the seeds of Lucerne, a field of which was in the neighbourhood. *Fl.* July—Sept. ⊙.

27. CARDUUS. *Linn.* Thistle.

Involucre tumid, imbricated with spinous scales. *Receptacle* hairy. *Pappus* deciduous, rough.—Name; Theis derives this from *ard*, in Celtic, a *point;* whence also αρδος, in Greek; *arduus*, in Latin; and *Cardo*, and even *Cardinal.*

Syngenesia. Æqualis.

* *Leaves decurrent.*

1. C. *nutans*, Linn. *Musk Thistle.* Leaves decurrent, spinous; flowers solitary, drooping; scales of the involucre lanceolate, cottony; outer ones spreading. *Br. Fl.* 1. *p.* 350. *E. Fl. v.* iii. *p.* 384. *E. Bot. t.* 1112.

By the side of the road between Gort and Corrofin, on a limestone soil, sparingly, in 1805. County of Derry; *Mr. D. Moore. Fl.* July, Aug ♂.—*Leaves* oblong, deeply sinuated. *Flowers* large, handsome, purple; smelling strongly of musk in warm weather according to Lightfoot.

2. C. *acanthoides*, Linn. *Welted Thistle.* Leaves decurrent, sinuated, spinous; involucre globose, nearly sessile, its scales linear, slightly recurved. *Br. Fl.* 1. *p.* 350. *E. Fl. v.* iii. *p.* 383. *E. Bot. t.* 973.

Way-sides and waste places, frequent. *Fl.* June, July. ⊙.—Three to four feet high, uninterruptedly winged, branched. *Flowers* clustered at the ends of the branches, deep purple.

3. C. *tenuiflorus*, Curt. *Slender-flowered Thistle.* Leaves decurrent, sinuated, spinous, somewhat cottony beneath; invo-

lucres nearly cylindrical, clustered, sessile, their scales lanceolate, erect. *Br. Fl.* 1. *p.* 350. *E. Fl. v.* iii. *p.* 385. *E. Bot. t.* 412.

Waste grounds and way-sides, common. *Fl.* June, July. ⊙.—Two to four feet high, winged the whole way up the *stem* with the decurrent bases of the *leaves.*

* * *Leaves sessile.*

4. C. *marianus*, Linn. *Milk Thistle.* Leaves amplexicaul, waved, spinous, the radicle ones pinnatifid; scales of the involucre subfoliaceous, recurved, spinous at the margin. *Br. Fl.* 1. *p.* 350. *E. Fl. v.* iii. *p.* 386. *E. Bot. t.* 976.—*Sylibum marianum*, *Gærtn. Lindl.*

Waste ground and in old Churchyards. Plentiful at the old Church of Kilbarrick, and about Baldoyle and Howth, &c. *Fl.* July. ♂.—Three to five feet high. Distinguished at once by the milky veins on its *leaves*, and the great recurved *scales* of the *involucre.*—A variety which I have seen, is rarely found in England, with the dark shining green leaves of the more common variety, but without having the milky veins.

Tribe III. *Cichoraceæ.* Juss.

Florets all ligulate and hermaphrodite. Receptacle scarcely fleshy.—Sap generally milky.

28. SONCHUS. *Linn.* Sow-Thistle.

Receptacle naked. *Calyx* imbricated, swelling at the base. *Down* simple, sessile.—Name; *σουχος* in Greek, from *σομφος*, *soft*, in allusion to the soft nature of the stems.

Syngenesia. Æqualis.

1. S. *arvensis*, Linn. *Corn Sow-Thistle.* Flower-stalks corymbose and involucre glandulose-hispid; leaves denticulate, cordate at the base, oblongo-lanceolate, lower ones sinuato-runcinate. *Br. Fl.* 1. *p.* 339. *E. Fl. v.* iii. *p.* 342. *E. Bot. t.* 674.

Corn fields, frequent. *Fl.* Aug. ♃.—*Stems* 3—4 feet high. *Flowers* very large, yellow.

2. S. *oleraceus*, Linn. *Common Sow-Thistle.* Flower-stalks subumbellate; involucre glabrous; leaves more or less pinnatifid, lower ones stalked, upper ones lanceolate, sagittato-amplexicaul at the base, all dentato-ciliate; fruit cancellate. *Br. Fl. ed.* iii. *p.* 346. *E. Fl. v.* iii. *p.* 343. *E. Bot. t.* 843.—*β. asper;* leaves with rounded auricles, lower ones sessile; fruit ribbed, scarcely cancellate. *S. oleraceus*, *γ.* and *δ. Linn. et Sm.*—*S. asper*, *Hoffm.*—*Borr. in E. Bot. Suppl. t.* 2765 *and* 2766.

α. and β. Waste places and cultivated ground, common. *Fl.* June—Aug. ☉.—Two to three feet high. *Flowers* small, yellow. *Involucre* conical when in seed.

29. PRENANTHES. *Linn.* Wall-Lettuce.

Involucre cylindrical, its scales equal, with smaller ones at the base. *Florets* few. *Receptacle* naked. *Pappus* simple, sessile.—Name, from πρηνης, *drooping*, and ανθος, a *flower*.
Syngenesia. Æqualis.

1. P. *muralis*, Linn. *Ivy-leaved Wall-Lettuce.* Florets 5; leaves lyrato-pinnatifid and toothed, the terminal lobe angular; panicle with divaricated branches. *Br. Fl.* 1. *p.* 340. *E. Fl. v.* iii. *p.* 348. *E. Bot. t.* 457.—*Chondrilla muralis*, *Lam.*—*Lindl.*

On old walls and in woods. Woods at Collon, County of Louth; *Doctor Wade*, where I have also seen it. *Fl.* July. ♂.—*Stem* 2 feet high, panicled above. *Flowers* small, yellow. *Fruit* with an elongated, narrow neck, not really stipulate.

30. LAPSANA. *Linn.* Nipple-wort.

Involucre with small scales at the base. *Receptacle* naked. *Fruit* quickly deciduous. *Pappus* none.—Name; λεπαζω, *to purge*, from its laxative qualities.
Syngenesia. Æqualis.

1. L. *communis*, Linn. *Common Nipple-wort.* Involucre of the fruit angular; stem panicled; peduncles slender; leaves ovate, petiolate, angulato-dentate. *Br. Fl.* 1. *p.* 348. *E. Fl. v.* iii. *p.* 376. *E. Bot. t.* 844.

Waste and cultivated ground, common. *Fl.* July, Aug. ☉.—*Stems* 2—4 feet long. *Leaves* soft and thin, slightly hairy, the *radical* ones more or less lyrate. *Flowers* small, yellow.

31. LEONTODON. *Linn.* Dandelion.

Involucre imbricated with scales, of which the outermost are frequently lax and flaccid. *Receptacle* naked. *Pappus* stipitate, simple.—Name; λεων, a *Lion*, and οδους, a *tooth*, from the tooth-like margins of the leaves.
Syngenesia. Æqualis.

1. L. *Taraxacum*, Linn. *Common Dandelion.* Outer scales of the involucre reflexed; leaves runcinate, glabrous, toothed. *Br. Fl.* 1. *p.* 340. *E. Fl. v.* iii. *p.* 349. *E. Bot. t.* 510.

Meadows and pastures. *Fl.* all summer. ♃.—*Leaves* all radical, their segments more or less deep. *Scape* with a single, large *flower*.

2. L. *palustre*, Sm. *Marsh Dandelion.* Outer scales of the involucre erect, appressed; leaves sinuated and toothed, nearly

glabrous. *Br. Fl.* 1. *p.* 340. *E. Fl. v.* iii. *p.* 350. *E. Bot. t.* 553.

Watery and marshy places. On rocks in the bed of the Dargle river, abundant. *Fl.* all the summer. ♃.—Readily distinguished by its more glossy, shining leaves, and more slender habit than the preceding. It is, however, doubted by many acute Botanists whether it should be considered a distinct species from the last.

32. CREPIS. *Linn.* Hawk's-beard.

Involucre tumid at the base, surrounded with deciduous scales, ribbed and furrowed, (often very obscurely). *Receptacle* naked. *Pappus* simple, sessile.—Name; κρηπις, a *slipper* or *last* in Greek, but why applied to this plant is not known.
Syngenesia. Æqualis.

1. C. *virens*, Linn. Bab. *Smooth-green Hawk's-beard.* "Calyx equal in length to the pappus; leaves glabrous, lanceolato-runcinate or remotely dentate, cauline ones with their margins flat; fruit oblong, with smooth ribs, shorter than the pappus." *Babington's MSS.—C. tectorum, Br. Fl.* 1. *p.* 347. *E. Fl. v.* iii. *p.* 372. *E. Bot. t.* 1111.

Meadows, pastures, and waste ground, frequent. *Fl.* July. ⊙.—Very variable in size and luxuriance, from 1—2 feet high, generally of a fine deep shining green, nearly smooth, except the *calyx* which is more or less downy and glandular; *leaves* smooth, variously runcinate or jagged, the upper *ones* dilated and clasping at the base, where also they are mostly toothed.—I have adopted the name lately given to this plant by Mr. Charles C. Babington, of St. John's College, Cambridge, it being now considered by him and others to be *C. virens* of *Linnæus*. The *C. tectorum* of foreign authors which has not yet been found in Britain, is described as having the leaves sinuato-pinnatifid, the fruit oblong, attenuated, with rough ribs, equalling the pappus; whereas our plant has the fruit smooth, oblong, shorter than the pappus.

2. C. *biennis*, Linn. *Rough Hawk's-beard.* "Calyx shorter than the pappus; stem and runcinato-pinnatifid; leaves rough; fruit linear-oblong, attenuated, with rough ribs equalling the pappus." *Bab.—Br. Fl.* 1. *p.* 347. *E. Fl. v.* iii. *p.* 373. *E. Bot. t.* 149.

Sandy fields and ditch banks. Plentiful near Kilbarrick and Baldoyle, at Portmarnock and other places on the northern side of Dublin. *Fl.* June, July. ♂.—*Stems* 2—4 feet high, furrowed, rough above. Lobes of the *leaves* toothed. *Flowers* much larger than in the preceding. *Involucre* downy and somewhat bristly. *Pappus* very white, crowning the much elongated fruit.

33. HELMINTHIA. *Juss.* Ox-tongue.

Involucre double; inner of eight close scales, outer of four large, lax, leafy ones. *Receptacle* naked. *Pappus* feathery,

stalked. *Fruit* transversely striated.—Name; ἑλμινς, ελμινθος, a *worm*, and θηκη, a *case;* from the form of the fruit.
Syngenesia. Æqualis.

1. H. *echioides*, Gærtn. *Bristly Ox-tongue. Br. Fl.* 1. *p.* 338.—*Picris echioides, Linn.*—*E. Fl. v.* iii. *p.* 339. *E. Bot. t.* 972.

Borders of fields and ditch banks, not unfrequent near Dublin, and occasionally along the coast as far north as Drogheda; plentiful by the Mill-stream between Donnybrook and Miltown, and about Roebuck, as well as on the northern side of Dublin. *Fl.* June, July. ♂.—2--3 feet high, stout, hispid with numerous rigid hairs, springing from the tubercles. Lower *leaves* lanceolate; upper ones cordate, amplexicaul. *Flowers* small, yellow. Outer *involucre* with large heart-shaped scales.

34. PICRIS. *Linn.* Picris.

Involucre double; inner of many compact, upright, equal scales, outer of several lax, small, linear ones. *Receptacle* naked. *Pappus* sessile, slightly feathery. *Fruit* transversely striated.—Name; πικρος, *bitter*, as are many of this tribe.
Syngenesia. Æqualis.

1. P. *hieracioides*, Linn. *Hawk-weed Picris.* Stem rough with hooked bristles; leaves lanceolate, rough, toothed; flowers corymbose; peduncles with many bracteas. *Br. Fl.* 1. *p.* 338. *E. Fl. v.* iii. *p.* 339. *E. Bot. t.* 196.

Sandy field at Portmarnock, the only place in Ireland in which it has been found. *Fl.* July, Aug. ♃.—*Plant* dark green, hairy. *Stem* 2—3 feet high. *Flowers* an inch broad, solitary, yellow.

35. HIERACIUM. *Linn.* Hawkweed.

Involucre imbricated, ovate. *Receptacle* nearly naked, dotted. *Pappus* simple, sessile.—Name; ἱεραξ, a *hawk;* because birds of prey were supposed to employ this plant to strengthen their powers of vision. *Syngenesia. Æqualis.*

* *Scape leafless, or rarely with one leaf, single flowered.*

1. H. *Pilosella*, Linn. *Common Mouse-ear Hawkweed.* Scape one-flowered, leafless; leaves entire, elliptic-lanceolate, hairy, downy beneath; scions creeping. *Br. Fl.* 1. *p.* 343. *E. Fl. v.* iii. *p.* 356. *E. Bot. t.* 1093.

Banks and dry pastures, frequent. *Fl.* May—July. ♃.—Distinguishable at all times by its creeping *scions. Flowers* of a pale lemon-yellow.

* * *Stem with few (one or two) leaves, many-flowered.*

2. H. *Lawsoni*, Vill. *Glaucous hairy Hawkweed.* Hairy,

especially the petioles; stem more or less branched upwards, having 1—2 sessile leaves, those of the root ovato-lanceolate, entire or toothed; involucres with hairs which are black at the base and mixed with black pedunculated glands. *Br. Fl.* 1. *p.* 343. *E. Fl. v.* iii. *p.* 363. *E. Bot. t.* 2083.

Benyevena, County of Derry; *Mr. D. Moore. Fl.* Aug. ♃.—This species is best distinguished by its nearly entire and very villous leaves, especially their petioles which are often quite silky. In some of Mr. Moore's specimens the root leaves are furnished with distant teeth, in others they are quite entire.—The whole plant is of a soft and flaccid texture.

3. H. *pulmonarium*, Sm. *Lungwort Hawkweed.* Hairy, especially the petioles; stem 2—6 flowered, with 1—2 leaves, those of the root ovato-lanceolate, acute, deeply and unequally toothed throughout and lengthened into a petiole; those of the stem sessile; involucre hairy; hairs black at the base and often glandular. *Br. Fl.* 1. *p.* 344. *E. Fl. v.* iii. *p.* 362. *E. Bot. t.* 2307.

Rocky places. Newtown Glen, County of Down; *Mr. Templeton. Fl.* Aug. ♃.—*Stem* about a foot high, round; *stem leaves* very few, *radical leaves* erect, acute, spotted with purple. *Flowers* golden-yellow.

4. H. *murorum*, Linn. *Wall Hawkweed.* Stem with one petiolated leaf, branched upwards, subcorymbose, downy, especially below the involucre, where are a few black glands; radical leaves ovate, mostly toothed at the base, and hairy as well as the longish petioles; involucre downy. *Br. Fl.* 1. *p.* 344. *E. Fl. v.* iii. *p.* 359. *E. Bot. t.* 2080.

Rocks and old walls. Near Bantry; *Mr. J. Drummond.* Newtown-Glen, and Cave-hill, County of Down; *Mr. Templeton.* Benyevena and other places in the County of Derry on rocks; *Mr. D. Moore. Stem* one or two feet high, erect, rather hairy. *Leaves* broad, wavy, glaucous-green. *Flowers* about four or six, large, yellow.

* * * *Stem with many leaves, many-flowered.*

5. H. *sylvaticum*, Sm. *Wood Hawkweed.* Stem many-leaved, branched upwards, and subcorymbose, slightly hairy, and more or less downy beneath the involucre; leaves ovato-lanceolate, toothed with the sharp teeth pointing upwards, somewhat hairy; involucre with very short pubescence. *Br. Fl.* 1. *p.* 344. *E. Fl. v.* iii. *p.* 361. *E. Bot. t.* 2031.

Mountain woods, walls and rocks. Rocks by Powerscourt Waterfall, Devil's Glen, County of Wicklow, and many other places. *Fl.* Aug. ♃.—One or two feet high, scarcely hairy on the stem. The *leaves* are usually numerous, more or less distinctly toothed.

6. H. *paludosum*, Linn. *Succory-leaved Hawkweed.* Glabrous; stem panicled, fistulose; leaves alternate, somewhat elliptical, toothed, sharp pointed, clasping the stem with their

heart-shaped bases; calyx rough with prominent hairs. *Br. Fl.* 1. *p.* 345. *E. Fl. v.* iii. *p.* 363. *E. Bot. t.* 1094.

Moist woods, marshes, and rocky places, not unfrequent in various parts of the country. *Fl.* Aug. ♃.—Readily known by its smooth *stems* and *leaves*, amplexicaul *stem-leaves* with spreading teeth, and by the long black hairs on the *calyx*.

7. H. *molle*, Jacq. *Soft-leaved Hawkweed.* Stem angular, leafy, tubular, downy, corymbose; leaves lanceolate, slightly toothed, hairy, clasping the stem; lower ones stalked, elliptical and obtuse. *Br. Fl.* 1. *p.* 345. *E. Fl. v.* iii. *p.* 364. *E. Bot. t.* 2210.

Moist rocks on Magillycuddy's Reeks and other mountains in Kerry, 1805. Rocks near the river Sullane, County of Cork; *Mr. J. Drummond.* A specimen in the herbarium of Doctor Robert Graves, was found by him at the Devil's Glen, County of Wicklow. *Fl.* July, Aug. ♃.—*Plant* one foot high or upwards, remarkable for its obtuse radical *leaves*, which taper gradually into a long footstalk. *Scales* of the *involucre* with a few, black, glandular hairs.

8. H. *prenanthoides*, Vill. *Rough-bordered Hawkweed.* Stem erect, leafy, simply hairy; panicle corymbose, with hispid and glandular stalks; leaves oblong, cordate, and amplexicaul at the base, upper ones gradually smaller and ovato-cordate, acuminate, all glaucous beneath and remotely toothed. *Br. Fl.* 1. *p.* 346. *E. Fl. v.* iii. *p.* 368. *E. Bot. t.* 2285.

On moist rocks near the Dargle. In several Glens near Belfast; *Mr. Templeton. Fl.* Aug. ♃.—Three or four feet high. Lower *leaves* elliptic-oblong, upper heart-shaped. *Flower-stalks* glandular and cottony.

9. H. *sabaudum*, Sm. *Shrubby broad-leaved Hawkweed.* Stem erect, copiously leafy, many-flowered; leaves ovato-lanceolate, sharply toothed, rough-edged, somewhat clasping, hairy beneath. *Br. Fl.* 1. *p.* 346. *E. Fl. v.* iii. *p.* 367. *E. Bot. t.* 349.

Woods and coppices, in dry rocky places. Plentiful in Ross Island, Killarney, and in the woods at Glengariff, where the late Miss Hutchins found a variety with spotted leaves. County of Derry; *Mr. Templeton* and *Mr. D. Moore. Fl.* Aug., Sept. ♃.—*Stems* of a woody texture, two or three feet high, erect, wand-like, roundish, furrowed, rough to the touch. *Leaves* rough. *Flowers* numerous, yellow, in compound downy panicles, in small weak plants often solitary.

10. H. *umbellatum*, Linn. *Narrow-leaved Hawkweed.* Stem erect, simple, very leafy; leaves linear-lanceolate, subglabrous, slightly toothed; flowers subumbellate; peduncles downy; involucres glabrous. *Br. Fl.* 1. *p.* 346. *E. Fl. v.* iii. *p.* 269. *E. Bot. t.* 1771.

Woods and groves in stony and rocky places. In the Devil's Glen and other places in the County of Wicklow. Rocks on Benyevena; *Mr. D. Moore. Fl.* Aug., Sept. ♃.—Of a more slender habit than the last. *Stems* two feet high or upwards, almost smooth. *Leaves* numerous, almost linear. *Flowers* bright yellow, in corymbs or imperfect umbels.

36. HYPOCHÆRIS. *Linn.* Cat's-ear.

Involucre oblong, imbricated. *Receptacle* chaffy. *Pappus* feathery, stipitate or sessile.—Name; *υπο*, *for*, and *χοιρος*, a *hog*, the roots being eaten by that animal.
Syngenesia. Æqualis.

1. H. *radicata*, Linn. *Long-rooted Cat's-ear.* Stem branched, leafless, glabrous; peduncles with small scales; leaves runcinate, obtuse, scabrous. *Br. Fl.* 1. *p.* 348. *E. Fl. v.* iii. *p.* 376. *E. Bot. t.* 831.

Meadows, pastures and way sides, frequent. *Fl.* July. ♃.—*Leaves* all radical, spreading. *Stem* a foot or more high. *Peduncles* a little thickened upwards (remarkably so at the upper extremity). *Flowers* rather large, yellow. *Pappus* stalked in *fruit.*

37. TRAGOPOGON. *Linn.* Goat's-beard.

Involucre simple, of many scales. *Receptacle* naked. *Pappus* feathery, stalked. *Fruit* longitudinally striated.—Name; *τραγος*, a *goat*, and *πωγων*, a *beard;* from the beautifully bearded fruit.
Syngenesia. Æqualis.

1. T. *pratensis*, Linn. *Yellow Goat's-beard.* Involucre about as long as the corollas; leaves undivided, glabrous, acuminated, channelled; peduncles cylindrical. *Br. Fl.* 1. *p.* 337. *E. Fl. v.* iii. *p.* 337. *E. Bot. t.* 437.

Meadows and pastures in various places near Dublin. Near Cork; *Mr. J. Drummond.* Oldcastle, County of Meath; *Rev. Mr. Halpin. Fl.* June. ♂.—One to two feet high. *Flowers* yellow; head of fruit large. *Pappus* feathery, elevated on a long stalk.

38. THRINCIA. *Roth.* Thrincia.

Involucre nearly simple, multipartite, with a few small scales at the base. *Receptacle* naked, pitted. *Pappus* of the *florets* of the *circumference* scaly, those of the *centre* feathery, sessile.—Name; *ϑριγκος*, a *feather*, in allusion to the feathery pappus.
Syngenesia. Æqualis.

1. T. *hirta*, Roth. *Hairy Thrincia.* Stalks naked, single-flowered; leaves toothed, rough; calyx nearly smooth; outer row of seeds crowned with scales only. *Br. Fl.* 1. *p.* 341.—*Apargia hirta, Hoffm.*—*E. Fl. v.* iii. *p.* 352.—*Hedypnois hirta, E. Bot. t.* 555.—*Leontodon hirtum, Linn.*

Gravelly and sandy pastures, frequent. *Fl.* July, Aug. ♃.—*Root* abrupt, not tapering. *Flowers* small; *florets* destitute of hairs on the tube, as well as of glands under their tips, the inner ones with a less perfect *corolla* than the outer row.

39. APARGIA. *Schreb.* Hawkbit.

Involucre imbricated, the innermost scales equal, outer ones smaller. *Receptacle* naked, pitted. *Pappus* feathery, sessile. —Name of uncertain origin. Ἀπαργια, was applied to some plant of this tribe. *Syngenesia. Æqualis.*

1. A. ***hispida***, Willd. ***Rough Hawkbit.*** Scape single-flowered; leaves runcinate, hispid with forked hairs; flowers drooping in bud, florets hairy at their orifice, glandulose at the tip; involucre hairy. *Br. Fl.* 1. *p.* 341. *E. Fl. v.* iii. *p.* 351. —*Hedypnois hispida, Huds.—E. Bot. t.* 554.—*Leontodon hispidum, Linn.*

Meadows, pastures, gravelly and sandy places, frequent. *Fl.* June, July. ♃.—*Root* tapering, long and slender. *Leaves* lanceolato-oblong, with reversed, nearly equal and regular teeth, their base tapering, and more entire. *Flowers* smaller than Dandelion, erect when expanded, bright yellow.

2. A. *Taraxaci*, Willd. *Dandelion Hawkbit.* Scapes thickened above and hairy, mostly single-flowered; leaves runcinate, glabrous; involucre hairy. *Br. Fl.* 1. *p.* 341. *E. Fl. v.* iii. *p.* 352.—*Hedypnois Taraxaci, E. Bot. t.* 1109.

Moist rocks on Magillycuddy's Reeks, and other mountains in Kerry. *Fl.* Aug. ♃.—Remarkable as Doctor Hooker observes for its *scape* being thickened upwards, and there, as in the *involucre*, clothed with black hairs. *Flowers* rather large, yellow.

3. A. *autumnalis*, Willd. *Autumnal Hawkbit.* Scape branched, scaly upwards; leaves lanceolate, toothed or pinnatifid, nearly glabrous; peduncles swollen beneath the somewhat downy involucre. *Br. Fl.* 1. *p.* 343. *E. Fl. v.* iii. *p.* 353.—*Hedypnois autumnalis, E. Bot. t.* 830.—*Leontodon autumnale, Linn.*

Meadows and pastures, frequent. A variety with dark hairs on the involucre found in marshy places on Howth, has sometimes been mistaken for the last, which is only found in alpine situations. *Fl.* Aug. ♃. —*Involucre* cylindrical, and tapering gradually into a *pedicel*, which is scaly. *Flowers* small, numerous, yellow.

40. CICHORIUM. *Linn.* Wild Succory.

Involucre of eight scales, surrounded by five smaller ones at the base. *Receptacle* naked or slightly hairy. *Pappus* sessile, scaly, shorter than the fruit.—Name; *chikouryeh,* in Arabic. The Egyptians eat a vast quantity of this vegetable. *Syngenesia. Æqualis.*

1. C. *Intybus*, Linn. *Wild Succory.* Flowers sessile, axillary, in pairs; leaves runcinate. *Br. Fl.* 1. *p.* 348. *E. Fl. v.* iii. *p.* 379. *E. Bot. t.* 539.

Borders of fields and gravelly banks. Plentiful near Balbriggan; also near Cork, and in the North of Ireland, as noticed by Mr. Drummond and Mr. Templeton. *Fl.* July, Aug. ♃.—*Stem* one to three feet high, erect, branched. *Flowers* numerous, large, bright, but pale blue. This is much used in France as a salad, as another species of the genus *C. Endivia* or Garden Endive is in Britain and Ireland. The roots cut into small pieces, and slightly roasted are employed as a substitute for Coffee in some parts of Germany, and in Belgium a portion of Chichory is generally mixed with Coffee beans. In England it is sometimes cultivated on dry gravelly or chalky soils as an early fodder for cattle.

Subclass III. COROLLIFLORÆ. *De Cand.*

Calyx free (not adnate with the ovary), formed of sepals more or less combined. Petals united, so as to form an hypogynous monopetalous corolla, which bears the stamens. Ovary free.

Ord. 42. BORAGINEÆ. *Juss.* Borage Family.

Calyx with 5 (rarely 4) divisions, persistent. Corolla hypogynous, monopetalous, mostly regular, 5, sometimes 4-cleft; its æstivation imbricated. Stamens inserted upon the corolla, of the same number with its segments, rarely more. Ovary 4-partite, 4-seeded or simple, and 2—4-celled; ovules definite, pendulous. Nucules 4, distinct or combined below; sometimes a 4-celled drupe, or a berry with 2—4 bony seeds. Seeds without albumen or nearly so. Embryo inverted.—*Herbs or shrubs. Leaves alternate, without stipules, generally rough. Flowers frequently in secund spikes, sometimes panicled or corymbose, sometimes axillary, solitary.*

1. Echium. *Linn.* Viper's Bugloss.

Calyx 5-parted. *Corolla* with a short tube; limb large, campanulate, obliquely 5-lobed; segments unequal; the two upper largest, the lowest small, acute and reflexed. *Nuts* covered with little tubercles.—Name from εχις, a *Viper;* because this, or some allied plant, was supposed to be an effectual remedy against the bite of that animal.

Pentandria. Monogynia.

1. E. *vulgare,* Linn. *Common Viper's Bugloss.* Stem bristly and warty; stem-leaves lanceolate, bristly, single-ribbed; spikes lateral, deflexed, hairy. *Br. Fl.* 1. *p.* 79. *E. Fl. v.* i. *p.* 268. *E. Bot. t.* 181.

In fields and waste ground, in a sandy or gravelly soil. Near Bantry; *Mr. J. Drummond.* Mansfieldstown, County of Louth;

Mr. P. Kearns. Field near Belfast; *Mr. Templeton.* *Fl.* June, July. ♂.—*Corolla* very beautiful, on expansion reddish-purple, afterwards brilliant blue. "In Scotland and in England it is occasionally found with *white* flowers." *Hooker.*

2. LITHOSPERMUM. *Linn.* Gromwell.

Calyx 5-parted. *Corolla* small, 5-lobed, funnel-shaped. *Anthers* oblong, included in the throat of the corolla. *Stigma* obtuse, bifid. *Nuts* shining, even or wrinkled.—Name from λιθος, a *stone*, and σπερμα, a *seed;* from its shining, very hard seeds or nuts. The English, Gromwell, has the same origin in the Celtic; *graun*, a *seed*, and *mil*, a *stone*.

Pentandria. Monogynia.

1. L. *officinale*, Linn. *Common Gromwell, Grey Mill.* Nuts even; corolla not much longer than the calyx; leaves lanceolate, rather acute, with lateral transverse ribs. *Br. Fl.* 1. *p.* 80. *E. Fl. v.* i. *p.* 254. *E. Bot. t.* 134.

Dry, waste and uncultivated places, and among rubbish, frequent. Near Dublin, and many other parts of the country. *Fl.* May, June. ♃.—One to one foot and a half high. *Fl.* pale yellow. *Nuts* whitish-brown, highly polished.

2. L. *arvense*, Linn. *Corn Gromwell or Bastard Alkanet.* Nuts wrinkled; corolla not much longer than the calyx; leaves obtuse, without lateral ribs. *Br. Fl.* 1. *p.* 80. *E. Fl. v.* i. *p.* 255. *E. Bot. t.* 123.

Corn fields and waste ground, frequent. *Fl.* May, June. ⊙.—*Root* red. *Flowers* white. *Seeds* brown, pitted, polished.

3. L. *maritimum*, Lehm. *Sea-side Gromwell.* Nuts keeled, even; leaves ovate, glaucous, besprinkled with callous points; stems all procumbent. *Br. Fl.* 1. *p.* 81. *E. Fl. v.* i. *p.* 256.—*Pulmonaria maritima, Linn.*—*E. Bot. t.* 368.

Sea-side among sand or loose stones, but not common. Plentiful at the Murrow of Wicklow; coast between Balbriggan and Skerries. Coast near Dundrum, County of Down; *Mr. Templeton.* *Fl.* May, June. ♃.—Lower leaves on footstalks and acute, upper ones sessile. *Flowers* somewhat racemed, of a beautiful purplish blue: tube of the *corolla* short. Whole plant very glaucous and when the bloom is rubbed off, rough callous points are seen upon the surface, which become white and almost stony in drying, when the rest of the plant is nearly black.

3. SYMPHYTUM. *Linn.* Comfrey.

Calyx 5-cleft. *Corolla* cylindrical, campanulate; tube very short; limb ventricose, with five short lobes. *Scales* of the orifice subulate, converging.—Name from συμφυω, to *unite;* from its supposed healing qualities.

Pentandria. Monogynia.

1. S. *officinale*, Linn. *Common Comfrey.* Leaves ovato-lanceolate, decurrent, finely hairy. *Br. Fl.* 1. *p.* 81. *E. Fl. v.* i. *p.* 263. *E. Bot. t.* 817.

Banks of rivers and moist meadows. Kelly's Glen above the gap of Ballinascorney. Abundant in the County of Derry; *Mr. D. Moore.* On the Cave-hill; *Mr. Templeton.* Near Cork; *Mr. J. Drummond.* *Fl.* May, June. ♃.—Two or three feet high, branched above. *Root leaves* ovate, petiolated. *Racemes* in pairs, secund, drooping. *Corollas* large, yellowish-white, often purple.

4. Borago. *Linn.* Borage.

Calyx 5-parted. *Corolla* rotate, 5-cleft, usually spreading. *Scales* of the orifice obtuse, emarginate. *Nuts* wrinkled.—Name from *Cor, heart,* and *ago, to bring:* thence corrupted into *Borago*, or, as the French spell it, *Borrago.*
Pentandria. Monogynia.

1. B. *officinalis*, Linn. *Common Borage.* Limb of the corolla flat, much longer than the tube, mouth with a double row of valves; the innermost awl-shaped, bearing the stamens. *Br. Fl.* 1. *p.* 81. *E. Fl. v.* i. *p.* 263. *E. Bot. t.* 817.

Among rubbish and waste ground, but scarcely indigenous. Way side at Glenmire, near Cork. Old Abbey of Timoligne, County of Cork; *Mr. J. Drummond.* *Fl.* June, July. ♂.—Whole plant very hispid. *Corolla* large, brilliant blue, with very prominent stamens. It forms an ingredient with wine, water, lemon, and sugar in a favourite English drink called a *cool tankard.*

5. Lycopsis. *Linn.* Bugloss.

Calyx 5-cleft. *Corolla* funnel-shaped, 5-lobed; limb nearly erect; *tube* incurved. *Scales* of the orifice ovate, prominent, converging. *Stigma* emarginate. *Nuts* sculptured at the base.—Name from λυκος, a *wolf,* and οψις, a *face:* from a fancied resemblance in the gaping flower to the head of a wolf. *Pentandria. Monogynia.*

1. L. *arvensis*, Linn. *Small Bugloss.* Leaves lanceolate, wavy, somewhat toothed, very bristly; stalks of the flowers and fruit erect; limb of the corolla slightly unequal. *Br. Fl.* 1. *p.* 82. *E. Fl. v.* i. *p.* 267. *E. Bot. t.* 938.—*Anchusa arvensis, Lehm.*

Corn fields, and sandy grounds near the coast, frequent. *Fl.* June, July. ⊙. Whole plant very hispid; hairs or bristles seated on a white, callous tubercle. *Racemes* leafy. *Flowers* small, bright blue, differing from those of *Anchusa* in the curvature of the tube.

6. Anchusa. *Linn.* Alkanet.

Calyx 5-cleft. *Corolla* funnel-shaped, 5-lobed; the limb erect;

the lobes entire. The other characters of Lycopsis. *De Cand.*—Name from *αγχουσα*, *paint.* The roots of one species, *A. tinctoria*, yield a red dye which has been used in former times to stain the face.

Pentandria. Monogynia.

1. A. *sempervirens*, Linn. *Evergreen Alkanet.* Flower-stalks axillary, each bearing two dense spikes, with an intermediate flower, and two principal ovate bracteas; leaves ovate. *Br. Fl.* 1. *p.* 82. *E. Fl. v.* i. *p.* 258. *E. Bot. t.* 45.

Waste ground and hedge banks. Hedges near Dunglass, County of Cork; *Mr. J. Drummond.* Near the ruins of Grey Abbey, County of Down; *Mr. J. Campbell.* Near Port Glenone and Maghrafelt; *Mr. Templeton. Fl.* May, June. ♃.—*Flowers* of a beautiful blue. The shape of the *corolla* as Sir James E. Smith observes is rather salver than funnel-shaped.

7. Myosotis. *Linn.* Scorpion-grass.

Calyx 5-cleft, or 5-toothed. *Corolla* hypocrateriform, with a short tube; limb flat, with five emarginate lobes. *Scales* of the orifice convex, converging. *Nuts* smooth.—Name from *μυς, μυος*, a *mouse*, and *ους, οτος*, an *ear*; from the shape of the leaves. *Pentandria. Monogynia.*

1. M. *palustris*, Roth. *Great Water Scorpion-grass, or Forget-me-not.* Nuts smooth; leaves and calyx roughish, with close bristles; clusters leafless; calyx funnel-shaped, with short broad spreading teeth; limb of the corolla horizontal, longer than the tube; root creeping. *Br. Fl.* 1. *p.* 83. *E. Fl. v.* i. *p.* 249. *E. Bot. t.* 1973.—*M. scorpioides, Curt. Fl. Lond. fasc.* 3. *p.* 13.

Ditches and sides of rivers, abundant. *Fl.* during the summer months. ♃.—About a foot high. *Flowers* among the largest of the British species, bright blue with a yellow eye, and a small white ray at the base of each segment.

2. M. *cæspitosa*, Schultz. *Tufted Water-Scorpion-grass.* Nuts smooth; calyx with straight appressed bristles, when in fruit campanulate, open, shorter than the divergent pedicels; limb of the corolla concave, equalling the tube; pubescence of the stem appressed. *Br. Fl.* 1. *p.* 83. *E. Fl. v.* i. *p.* 250.

In watery places. In wet ditches above Dundrum. Banks of Lough Neagh; *Mr. D. Moore.* Cranmore near Belfast; *Mr. Templeton. Fl.* May, June. ♂. or ♃. *Sm.*—*Root* fibrous, not creeping. *Stem* throwing fibres from the lower joints. *Calyx* sparingly sprinkled with appressed, white bristles, cleft more deeply than in *M. palustris. Corolla* varying in size, but usually not much exceeding the calyx.

3. M. *sylvatica*, Hoffm. *Upright Wood Scorpion-grass.* Fruit smooth; calyx with spreading uncinate bristles, deeply 5-cleft, when in fruit ovate (closed) shorter than the divergent

pedicels; limb of the corolla flat, longer than the tube; root-leaves on long dilated stalks. *Br. Fl.* 1. *p.* 84. *E. Bot. Suppl. t.* 2630.

In dry shady places. The Cave-hill and other places near Belfast; *Mr. Templeton. Fl.* June, July. ♃.—Nearly allied to the following species, from which it may be distinguished by its greater size, somewhat more deeply divided calyx, and its shorter less remarkably hooked bristles.

4. M. *arvensis*, Hoffm. *Field Scorpion-grass.* Fruit smooth; calyx with spreading uncinate bristles one-half 5-cleft, when in fruit ovate, closed, shorter than the diverging pedicels; limb of the corolla concave, equalling the tube. *Br. Fl.* 1. *p.* 85. *E. Bot. Suppl. t.* 2629.—*M. scorpioides, a. arvensis, Linn. Sp. Pl. p.* 188. *Fl. Br. p.* 212.

Very common in cultivated grounds, &c. *Fl.* June—Aug. ⊙.—From 6 to 12 inches high. *Stems* usually several, erect, from a curved base, with ascending axillary branches. Lower *leaves* obtuse, ovate, or spathulate, tapering down to a broad winged stalk. Upper ones acute, oblong-lanceolate, sessile, and partially embracing the stem, which is angular from the edges and midrib of the leaves being decurrent, and like the leaves, greyish with abundance of soft spreading hairs curved upwards. *Racemes* terminal, solitary or in pairs, dense and revolute at first, as usual in the genus, and gradually becoming lax and erect as the flowers expand, and then separated by a considerable interval from the uppermost leaf. *Flowers* numerous, small; tube of the corolla yellowish, a little inflated, rather shorter than the calyx, with a concave limb about the same length, rose-coloured at first, afterwards pale bright blue. [illegible]

5. M. *versicolor*, Lehm. *Yellow and blue Scorpion-grass.* Fruit smooth; calyx with spreading uncinate bristles, when in fruit oblong, (closed) longer than the almost erect pedicels; limb of the corolla concave, shorter than the exserted tube. *Br. Fl.* 1. *p.* 86. *E. Fl. v.* i. *p.* 253. *E. Bot. t.* 2558.—*M. scorpioides, β. Huds. Angl. p.* 78. *Sm. Fl. Br. p.* 212. *E. Bot. t.* 480. (fig. sinist.)

Common in wet meadows, as well as dry sandy places. Plentiful in sandy fields near Kilbarrick Church, &c. *Fl.* April—June. ⊙.—*Leaves* narrow. *Clusters* much elongated and erect when in fruit.

8. CYNOGLOSSUM. *Linn.* Hound's-tongue.

Calyx 5-parted. *Corolla* short, funnel-shaped, 5-lobed. *Scales* of the orifice convex, converging. *Stigma* emarginate. *Nuts* depressed.—Name from κυων, a *dog*, and γλωσσα, a *tongue*: from the shape and texture of the leaf.

Pentandria. Monogynia.

1. C. *officinale*, Linn. *Common Hound's-tongue.* Stamens shorter than the corolla; stem-leaves broadly lanceolate, downy, sessile; flowers without bracteas. *Br. Fl.* 1. *p.* 87. *E. Fl. v.* i. *p.* 260. *E. Bot. t.* 921.

Waste and sandy grounds. Plentiful in the Phœnix Park; Kilbarrick; sand hills opposite Malahide, &c. At the latter place I have observed a variety with white flowers. *Fl.* June, July. ♂.—Whole plant soft to the touch, dull green, of a fetid smell like that of mice; often two feet high. *Lower leaves* on long footstalks. *Flowers* (generally) purplish red. *Fruit* very rough.

2. C. *sylvaticum*, Hænke. *Green-leaved Hound's-tongue.* Stem-leaves lanceolate, broad at the base, shining, sessile, slightly hairy and scabrous, especially beneath; stamens shorter than the corolla. *Br. Fl.* 1. *p.* 87. *E. Fl. v.* i. *p.* 266. *E. Bot. t.* 1642.

Shady places by road sides, rare. A specimen in the late Dr. Scott's herbarium was found by him near Balbriggan, but it has not been found there of late. *Fl.* June, July. ♃.—Readily distinguished from the last by the more or less shining and brighter coloured *leaves*, free from pubescence, and their different figure. *Root-leaves* ovato-lanceolate, on very long footstalks.

ORD. 43. CONVOLVULACEÆ. *Juss.* Bind-weed Family.

Calyx with five divisions, persistent. Corolla monopetalous, hypogynous, regular; the limb 5-fid, generally plaited, deciduous. Stamens 5, inserted at the bottom of the corolla, and alternate with its segments. Ovary single, with an annular gland at the base, 2—4-celled, rarely imperfectly 1-celled, sometimes 2—4-partite, with few definite, erect ovules, when more than one, collateral: style 1, often divided at the apex, sometimes as far as the base: stigmas obtuse or acute. Capsule 1—4 celled, the margins of the valves corresponding to the angles of a free dissepiment, bearing the seeds at its base, sometimes without valves or opening transversely (*capsula circumscissa*). Seeds with a small quantity of mucilaginous albumen. Embryo curved: cotyledons wrinkled: radicle inferior.—*Herbs or shrubs chiefly of the tropics, generally climbing and milky, glabrous or with a simple pubescence. Leaves alternate, undivided or lobed, rarely pinnatifid, without stipules. Inflorescence axillary or terminal; peduncles one, or many-flowered, the pedicels often with two bracteas.*

The roots yield a copious acrid and purgative milky juice. *Convolvulus Jalapa* affords Jalap, and *C. Scammonia* the Scammony, and many others may be employed medicinally. An esculent root, the Sweet Potatoe, is afforded by *Convolvulus Batatas.*

1. CONVOLVULUS. *Linn.* Bindweed.

Calyx 5-cleft. *Corolla* campanulate, plicate. *Stigmas* two. *Capsules* of 1—3 cells, with as many valves. *Cells* 1—2-

seeded.—Name from *convolvo*, to *entwine:* whence, too, the English name *Bindweed.* *Pentandria. Monogynia.*

* *With two small bracteas remote from the calyx.*

1. C. *arvensis*, Linn. *Small Bindweed.* Stem climbing; leaves sagittate, their lobes acute; peduncles mostly single-flowered; bracteas minute, distant from the flower. *Br. Fl.* 1. *p.* 96. *E. Fl. v.* i. *p.* 284. *E. Bot. t.* 312.

Corn-fields, hedges, &c. especially in a light soil. *Fl.* June, July. ♃.—*Flowers* rather small, rose-coloured. *Root* running very deep into the ground and difficult of extirpation.

* * *With two large bracteas applied to the calyx.* (Calystegia. *Br.*)

2. C. *Sepium*, Linn. *Great Bindweed.* Stem climbing; leaves sagittate, the lobes truncate; peduncles 4-sided, single-flowered; bracteas large, heart-shaped, close to the flower. *Br. Fl.* 1. *p.* 96. *E. Fl. v.* i. *p.* 284. *E. Bot. t.* 313.

Moist woods and hedges. *Fl.* July, Aug. ♃.—Much larger than the last in every part. *Flowers* very large, showy, pure white, rarely pink.

3. C. *Soldanella*, Linn. *Sea Bindweed.* Stem prostrate; leaves reniform, fleshy; peduncles 4-sided, single-flowered, their angles winged; bracteas large, ovate, close to the calyx. *Br. Fl.* 1. *p.* 96. *E. Fl. v.* i. *p.* 284. *E. Bot. t.* 314.

Sea-shore in sandy and gravelly places. Portmarnock and other places near Dublin. *Fl.* June—Aug. ♃.—*Root* long, creeping. *Flowers* few, large, rose-coloured. " *Capsules* of 3—4 cells, less frequently of 2, never of 1." *(Mr. J. Wilson) Hooker.*

2. Cuscuta. *Linn.* Dodder.

Calyx 4—5-cleft. *Corolla* campanulate, 4—5-lobed. *Capsule* bursting all round transversely at the base, 2-celled, with the cells 2-seeded.—*Parasitical leafless plants, with long twining filiform* stems.—Name, the same as *κασσυθα*, probably from the Arabic *Keshout.* *(Theis.)*

Pentandria. Digynia.

1. C. *europæa*, Linn. *Greater Dodder.* Flowers nearly sessile; corolla with reflexed segments. *Br. Fl.* 1. *p.* 112. *E. Fl. v.* ii. *p.* 24. *E. Bot. t.* 378.

Parasitical on the common flax. *Fl.* Aug. Sept. ⊙.—*Stems* very large, red, having small tubercles and papillæ, which act as *roots.* *Flowers* clustered, of a pale yellowish rose colour.—The *lesser Dodder* *(C. Epithymum)* which grows parasitically on furze, heath and other plants in England and Scotland, has not yet been found in Ireland.

ORD. 44. POLEMONIACEÆ. *Juss.* Greek-Valerian Family.

Calyx free, of one piece with five divisions, persistent, sometimes irregular. Corolla regular, 5-lobed. Stamens 5, inserted into the middle of the tube of the corolla, and alternate with its segments. Ovary 3-celled, with a few or many ovules: style simple: stigma trifid: ovules ascending or peltate. Capsules 3-celled, 3-valved, few or many-seeded, opening between the dissepiments, or opposite to them; the valves separating from the axis. Seeds angular or oval, or winged, often enveloped in mucus, ascending. Embryo straight in the axis of a horny albumen: radicle inferior: cotyledons elliptical, foliaceous.—*Herbaceous plants, with opposite, or occasionally alternate, compound or simple leaves.*

1. POLEMONIUM. *Linn.* Jacob's Ladder.

Calyx 5-cleft. *Corolla* rotate, with a short tube; *limb* 5-lobed. *Filaments* broadest at the base; *anthers* incumbent.—Name from πολεμος, *war.* According to Pliny this plant caused a war between two kings, who laid claim to its discovery.

Pentandria. Monogynia.

1. P. *cæruleum*, Linn. *Jacob's Ladder, Greek Valerian.* Leaves pinnate; flowers erect; root fibrous. *Br. Fl.* 1. *p.* 96. *E. Fl. v.* i. *p.* 286. *E. Bot. t.* 14.

Banks and bushy places, rare. Knockmaroon-hill near Chapelizod. *Fl.* June. ♃.—One to two feet high. *Stem* angular. *Flowers* large, blue, sometimes white.

ORD. 45. PLANTAGINEÆ. *Juss.* Rib-grass Family.

Flowers perfect or separated. In the PERFECT FLOWERS; calyx (?) 4-partite, persistent: corolla (?) monopetalous, tubular, hypogynous, scariose, persistent; the limb 4-partite. Stamens 4, inserted upon the tube, alternate with its segments; filaments exserted, flaccid, with an induplicate æstivation: anthers 2-celled, the cells placed close together, side by side, bursting longitudinally. Ovary sessile, without any disk, 2, rarely 4-celled, the ovules peltate, solitary, in pairs or indefinite. Style 1, capillary: stigma slightly hispid, undivided, rarely cleft. Capsule opening transversely, with a longitudinal dissepiment, at length free. Seeds sessile on the dissepiment, solitary or two, sometimes indefinite: testa mucilaginous. Albumen of the same shape as the seed, fleshy. Embryo in the centre of the albumen, straight: radicle inferior.—In the separated flowers: Sterile Fl. Calyx and corolla as in the perfect flowers. Stamens inserted upon the receptacle: rudiment of the pistil minute.—Fertile Fl. Calyx none, unless the bracteas be considered as such. Corolla urceolate, undivided, contracted at the mouth, obsoletely toothed. Stamens none. Ovary 1-seeded, with an erect ovule. Style and stigma as in the perfect flowers. Capsule opening transversely.—*Herbs universally dispersed. Stems generally short, or scarcely any. Radical leaves crowded, sometimes subcylindrical, with the axils woolly. Scapes axillary, not often terminal, undivided. Flowers spiked, rarely somewhat solitary, each with a single bractea.*

1. Plantago. *Linn.* Plantain.

Corolla 4-cleft, the segments reflexed, *Stamens* very long. *Caps.* 2-celled, two or many-seeded, bursting all round transversely.—Name of doubtful origin.—All the species are mucilaginous and astringent. *Tetrandria. Monogynia.*

1. P. *major*, Linn. *Greater Plantain.* Leaves ovate, smoothish, somewhat toothed, on very long foot-stalks; flower-stalks round; seeds numerous. *Br. Fl.* 1. *p.* 67. *E. Fl. v.* i. *p.* 213. *E. Bot. t.* 1558.

Pastures and road sides, frequent. *Fl.* June, July. ♃.—*Leaves* all radical, spreading, somewhat erect, with seven nerves, entire or toothed, glabrous or pubescent. *Petioles* varying in length, sometimes as long as the leaf, ribbed. *Spike* dense.

2. P. *media*, Linn. *Hoary Plantain.* Leaves ovate, downy, with very short petioles; peduncles round; spike cylindrical; seeds solitary. *Br. Fl.* 1. *p.* 67. *E. Fl. v.* i. *p.* 214. *E. Bot. t.* 1559.

Dry limestone pastures. On the lands of Pea-hill below Feltrum; *Mr. John White*, but I have not seen Irish specimens. *Fl.* July. ♃.—*Stamens* long, with dark purple filaments. Spikes shorter than in P. *major*, and more silvery from the shining scariose corollas. The most ornamental of the British species and very conspicuous when in flower.

3. P. *lanceolata*, Linn. *Ribwort Plantain.* Leaves lanceolate, entire, tapering at each end, woolly at the base; flower-stalks angular; spike ovate. *Br. Fl.* 1. *p.* 67. *E. Fl. v.* i. *p.* 214. *E. Bot. t.* 175.

Meadows and pastures, common. *Fl.* June, July—♃.—*Leaves* plaited, erect, *spike* blackish with large cream-coloured anthers.

4. P. *maritima*, Linn. *Sea Plantain.* Leaves linear, channelled, nearly entire; flower-stalks round, longer than the leaves; spike cylindrical. *Br. Fl.* 1. *p.* 67. *E. Fl. v.* i. *p.* 215. *E. Bot. t.* 175.

Salt marshes and crevices of rocks on the sea-shore; also on grassy *bases* of mountains sloping towards the sea at considerable elevations. *Fl.* June—Sept. ♃.—Varying very much in the breadth and hairiness of the leaves and scapes as well as in size, sometimes proliferous.

5. P. *Coronopus*, Linn. *Buck's-horn Plantain.* Leaves in many pinnate, linear segments; flower-stalks round; dissepiment of the capsule with 4-angles, (thus forming 4-cells), 1-seed in each cell. *Br. Fl.* 1. *p.* 68. *E. Fl. v.* i. *p.* 216. *E. Bot. t.* 892.

Gravelly and sterile sandy soils, generally near the sea-coast. *Fl.* June, July. ⊙.—*Leaves* mostly spreading, very variable in size and pubescence, pinnatifid; segments often toothed or again divided. *Scape* hairy. *Spike* mostly cylindrical.

2. LITTORELLA. *Linn.* Shore-weed.

Barren fl. *Calyx* of 4 leaves. *Corolla* 4-fid. *Stamens* very long. *Fertile fl.* Calyx none (unless 3 bracteæ can be so called). *Corolla* urceolate, contracted at the mouth. *Style* very long. *Capsules* 1-seeded.—Name; *littus the shore*, from its place of growth. *Monœcia. Tetrandria.*

1. L. *lacustris*, Linn. *Plantain Shore-weed. Br. Fl.* 1. *p.* 401. *E. Fl. v.* iv. *p.* 130. *E. Bot. t.* 468.—*Plantago uniflora, Linn. Sp. Pl.*

Gravelly shores of lakes in various parts of the country, plentiful at Lough Bray, Lough Dan, &c. *Fl.* June ♃.—*Leaves* all radical, three or four inches long, linear, fleshy. *Scapes* several. *Corolla* white, with an inflated tube. *Fertile flowers* sessile in the axils of the leaves.

ORD. 46. PLUMBAGINEÆ. *Juss.* Lead-wort Family.

Calyx tubular, plaited, persistent. Corolla of one or five petals, equal. Stamens definite, hypogynous in the monopetalous corollas, inserted upon the petals in the polypetalous ones. Ovary 1, free, 1-seeded, with the ovule inverted, pendulous from the apex of a stalk arising from the bottom of the ovary. Styles 5 (rarely 3 or 4); stigmas as many. Fruit an almost valveless utricule. Seed inverted: integument simple. Embryo straight: radicle superior.—*Herbaceous or suffrutescent plants, frequently growing on the sea-coast, in various situations, and with a very diversified aspect. Leaves alternate or clustered, undivided, somewhat sheathing at the base. Flowers spiked or capitate.*

1. STATICE. *Linn.* Thrift.

Calyx of one piece, funnel-shaped, plaited, dry and membranaceous. *Petals* 5, united at the base, bearing the stamens. *Capsule* with one seed invested with the calyx.—Name from *στατιζω*, to *stop*, from its supposed qualities in checking dysentery. *Pentandria. Pentagynia.*

* *Flowers collected into a rounded head.* (Armeria, *De Cand.*)

1. S. *Armeria*, Linn. *Common Thrift, or Sea Gilliflower.* Leaves linear; scape simple, bearing a rounded head; awns of the calyx short. *Br. Fl.* 1. *p.* 145. *E. Fl. v.* ii. *p.* 115. *E. Bot. t.* 226.

Muddy sea-shores, among rocks by the sea-side, and on the tops of the highest mountains in Kerry. *Fl.* July, Aug. ♃.—*Leaves* all radical, numerous. *Heads* of *flowers* rose-coloured, intermixed with scales and having, besides, a brown, membranous, 3-leaved *involucre*, terminating below in a sheathing, jagged covering to the upper part of the scape.

* * *Flowers unilateral on a paniculated scape.* (Taxanthema, *Neck. Br.*)

2. S. *Limonium*, Linn. *Common Sea Lavender.* Leaves elliptic-lanceolate, stalked, mucronate, single-ribbed; scape angular, with a much branched spreading corymb at the top; calyx with deep acute plaited segments and intermediate teeth. *Br. Fl.* 1. *p.* 145. *E. Fl. v.* ii. *p.* 116. *E. Bot. t.* 102.

Muddy shores in various parts of the country. Plentiful on the shore near Baldoyle, &c. *Fl.* July, Aug. ♃.—*Leaves* two or three inches long, leathery, somewhat glaucous. *Panicle* spreading, alternately branched. *Flowers* small, imbricated, blue, each sheathed in a green tubular bractea.

3. S. *spathulata*, Desf. *Upright-spiked Sea Lavender.* Leaves spathulate, with a short mucro, glaucous, 3-ribbed at the base; scape branched from below the middle; panicle elongated; branches distichous; spikes erect; calyx with plane blunt segments without intermediate teeth. *Br. Fl.* 1. *p.* 145. *Sims, in Bot. Mag. t.* 1617. *S. Limonium, β. E. Fl. v.* ii. *p.* 116.—*S. reticulata. Hook. Scot.* 1. *p.* 97. *Mackay's Cat. p.* 35.

Gravelly bank on the shore near Baldoyle, with the last, and at Portmarnock; also on rocks by the sea on the south side of the hill of Howth; Killiney-Hill, and many places on the Kerry coast. *Fl.* Aug. ♃.—From three inches to a foot high. *Leaves* from one to two and a half inches long, coriaceous, with a white border extending from the base of the petiole to the upper extremity. *Panicle* more compact than in the last; *spikes* erect, with larger flowers.—The smaller states of this species very much resemble *S. reticulata* of *E. Bot.* hence the mistake that several other Botanists as well as myself have fallen into concerning it.

ORD. 47. OLEINEÆ. *Hoffmannsegg* and *Link*. Olive Family.

Flowers perfect or sometimes diœcious. Calyx monophyllous, divided, persistent, inferior. Corolla hypogynous, monopetalous, 4-cleft, occasionally of 4 petals, connected in pairs by the intervention of the filaments, sometimes without petals; æstivation somewhat valvate. Stamens 2, alternate with the segments of the corolla or the petals; anthers 2-celled, opening longitudinally. Ovarium simple, without any hypogynous disk, 2-celled; the cells 2-seeded; the ovules pendulous and collateral. Style 1 or 0. Stigma bifid or undivided. Fruit drupaceous, berried, or capsular; often by abortion 1-seeded. Seeds with dense, fleshy, abundant albumen; embryo straight; cotyledons foliaceous, partly asunder; radicle superior; plumula inconspicuous.—*Trees or shrubs. Leaves opposite, simple, seldom pinnated. Flowers in terminal or axillary racemes or panicles; the pedicels opposite, with single bracteæ.*

1. LIGUSTRUM. *Linn.* Privet.

Corolla 4-cleft. *Berry* 2-celled, with the cells 2-seeded.—Name from *ligo*, to *bind*, on account of the use sometimes made of its long and pliant branches.

Diandria. Monogynia.

1. L. *vulgare*, Linn. *Common Privet.* Leaves elliptico-lanceolate; panicle compact. *Br. Fl.* 1. *p.* 3. *E. Fl. v.* i. *p.* 13. *E. Bot. t.* 764.

Hedges. *Fl.* June, July. ♄.—A *bush* with opposite leaves, often used for hedges, mixed with the common thorn, particularly the evergreen variety. *Flowers* small, white. *Berries* black, globose.

2. FRAXINUS. *Linn.* Ash.

Calyx 0, or 4-cleft. *Corolla* 0, or of four petals. *Capsule* 2-celled, 2-seeded, compressed and foliaceous at the extremity. *Seeds* solitary, pendulous. (Some flowers without stamens.)—Name from *φραξις*, a *separation*, in allusion to the facility with which the wood may be split.

Diandria. Monogynia.

1. F. *excelsior*, Linn. *Common Ash.* Leaves pinnated; leaflets ovato-lanceolate, acuminate, serrated; flowers without either calyx or corolla. *Br. Fl.* 1. *p.* 11. *E. Fl. v.* i. *p.* 14. *E. Bot. t.* 1692.

Woods and hedge-rows. ♄.—A lofty *tree*, the wood of which is very valuable for many purposes, especially for implements of husbandry. *Leaves* pinnate. *Flowers* in panicles. *Capsules* lanceolate.

ORD. 48. ERICEÆ. *Juss.* Heath Family.

Calyx persistent, free, 3—4, often 5-partite. Corolla inserted into the base of the calyx (almost hypogynous), 4—5-cleft, marcescent. Stamens definite, equal and alternate with the segments of the corolla, or twice as many, distinct, inserted at the base of the calyx or of the corolla. Anthers 2-celled, the cells hard and dry, usually opening by pores, and furnished with appendages. Ovary 1, free, surrounded at the base by a disk or by scales: style 1: stigma 1. Fruit many-celled, baccate, or frequently capsular, many-seeded, many-valved; dehiscence various. Seeds minute, attached to central placentas: testa firmly adhering to the nucleus. Embryo straight in the axis of a fleshy albumen; radicle next the hilum.—*Shrubs or undershrubs. Leaves evergreen, rigid, entire, whorled, or opposite, without stipulæ. Inflorescence variable; the pedicels generally bracteate.*

1. ANDROMEDA. *Linn.* Andromeda.

Calyx deeply 5-cleft. *Corolla* ovate or campanulate. *Anthers* with awns. *Capsules* superior, 4—5-celled, the dissepiments from the middle of the valves.—Name given in allusion to the story of *Andromeda*, who was chained to a rock and exposed to the attack of a sea-monster: so does this beautiful tribe of plants grow in dreary and northern wastes, feigned to be the abode of præternatural beings.

Decandria. Monogynia.

1. A. *polifolia*, Linn. *Marsh Andromeda.* Leaves alternate, lanceolate, their margins revolute, glaucous beneath; flowers on short terminal racemes. *Br. Fl.* 1. *p.* 188. *E. Fl. v.* ii. *p.* 251. *E. Bot. t.* 713.

β. *costæflora;* leaves inversely ovato-lanceolate; flowers in umbels, 5-sided. *Templ. MSS.*

Peat bogs in various parts of the country. β. on a dry bog between Newport and Castleconnel. Near Grey Abbey, County of Down; *Mr. Templeton. Fl.* June. ♄.—A small evergreen *shrub*, with beautiful oval or urceolate, rose-coloured, drooping *flowers*, a good deal concealed among the terminal *leaves*. Two other distinct varieties are cultivated in gardens besides the two described above.

2. CALLUNA. *Salisb.* Ling.

Calyx of 4 coloured sepals, surrounded by 4 coloured bracteæ.

Corolla campanulate, 4-cleft. *Stamens* 8. *Capsules* 4-celled, the dissepiments adhering to the axis, and with 4-valves dehiscing through the dissepiments.—Name from καλλυνω, to *cleanse* or *adorn*, and hence peculiarly applicable, as Sir James E. Smith observes, to this plant, whether we consider the beauty of its flowers, or the circumstance of brooms being made of its twigs. *Octandria. Monogynia.*

1. C. *vulgaris*, Salisb. *Common Ling. Br. Fl.* 1. *p.* 177. *E. Fl. v.* ii. *p.* 225.—*Erica vulgaris, Linn. E. Bot. t.* 1013.

Heaths and moors, common; sometimes with white flowers. *Fl.* June—Aug ♄.—A much branched, tufted *shrub* with opposite, imbricated leaves, in four rows, varying very much in the colour of its flowers, more particularly so in different parts of Scotland, probably owing to the variation of the soils in which it grows.—I have seen in the Botanic Garden of Edinburgh eight or ten varieties, all of which have been collected by the excellent curator, Mr. M'Nab.—A variety with double flowers is not uncommon in collections. The common *Ling* is much used for brooms, and even for fuel where that article is scarce.

3. MENZIESIA. *Smith.* Menziesia.

Calyx 4-parted. *Corolla* ventricose, with a spreading 4 or 5-toothed limb. *Stamens* 8 or 10, inserted into the base of the corolla. *Capsule* 4-celled, many-seeded, with 4 valves dehiscing through the dissepiments.—Name, "Nomen dedi," says the learned founder of this Genus, "in honorem *Archibaldi Menzies* Scotici, peregrinatoris et Botanici indefessi, priscæ fidei ac urbanitatis viri."

Octandria. Monogynia.

1. M. *polifolia*, Smith. *Irish Menziesia, St. Dabeoc's Heath.* Leaves ovate, revolute; downy and white beneath; flowers cleft, octandrous, in terminal leafy clusters. *Br. Fl.* 1. *p.* 175. *E. Fl. v.* ii. *p.* 223.—*Erica Dabeoci, Linn. E. Bot. t.* 35.

Frequent on dry heaths over all the wild district of Cunnamara, and the mountainous parts of Mayo. *Fl.* July, Aug. ♄.—*Stems* twelve to eighteen inches high, bushy. *Leaves* ovate, half an inch long, shining, dark green above. *Flowers* large, drooping, purplish-red. *Corolla* with four blunt angles A beautiful variety with white flowers first found by J. Kenny, Esq. in the County of Mayo, about fifteen years ago, has since been observed in several parts of Cunnamara, and is now a favourite plant in gardens.

4. ERICA. *Linn.* Heath.

Calyx 4-parted. *Corolla* campanulate, often ventricose, 5-toothed. *Stamens* 8. *Capsule* with from 4 to 8 cells, and the same number of valves.—Name from ερικω, to *break*; because it was formerly supposed to have the power of desrtoying calculi in the bladder. *Octandria. Monogynia.*

1. E. *Tetralix*, Linn. *Cross-leaved Heath.* "Leaves four in a whorl, revoluto-linear, ciliated; flowers capitate, pedicelled; sepals linear, ciliated and pedicelled, downy; corolla ovate; anthers awned, included; style nearly included." *Bab. MSS. Br. Fl.* 1. *p.* 176. *E. Fl. v.* ii. *p.* 226. *E. Bot. t.* 1014.

Moist heaths and boggy ground. *Fl.* July, Aug. ♄.—The (longer) almost linear and revolute leaves of this species, noticed by Mr. Babington in the above description, serve along with other characters to distinguish it from the following.

2. E. *Mackaiana*, Babington. *Many-branched Cross-leaved Heath.* "Leaves four in a whorl, ovate, ciliated, smooth; flowers capitate, pedicelled; sepals ovate, ciliated, smooth; pedicels villous and downy; corolla oblongo-ovate; anthers awned, included; style exserted." *Bab. MSS.*

On the declivity of a hill by the road side within three miles of Roundstone, Cunnamara; *Mr. W. M'Calla.* *Fl.* July, Aug. ♄.—Specimens of this presumed new species were left for me in Sept. 1835, by Mr. Babington, and soon after I received others from the discoverer, when at first sight it struck me as being different from any species I was acquainted with. In its ovate, ciliated leaves, it much resembles *E. ciliaris*, while in its mode of flowering and awned anthers it agrees with *E. Tetralix;* it however differs from that species in its more shrubby habit and in the disposition of its branches, which, instead of having the flowering ramuli generally springing from one point *(determinate ramosi)* they are irregularly disposed and much crowded towards the top of the main branches. Doctor Hooker, who has kindly sent me a figure of this, is not as yet decided in his opinion whether it will ultimately prove a distinct species from *E. Tetralix.* There is however, I think, no doubt of its being at least a very distinct variety.

3. E. *cinerea*, Linn. *Fine-leaved Heath.* Anthers crested; style a little prominent; stigma capitate; corolla ovate; leaves three in a whorl. *Br. Fl.* 1. *p.* 176. *E. Fl. v.* ii. *p.* 226. *E. Bot. t.* 1015.

Dry heaths, woods and thickets, common. *Fl.* July, Aug. ♄.—*Stem* from one to one and a half foot high in exposed situations; in woods at Mucruss, it attains the height of five or six feet. *Flowers* numerous, in dense leafy *panicles*, drooping, reddish-purple, occasionally white. *Leaves* nearly linear, glabrous.

4. E. *mediterranea.* *Mediterranean Heath.* Anthers without awns, and as well as the style exserted; corolla narrow, urceolate; bracteas about the middle of the peduncle; calyx coloured; flowers axillary; leaves four in a whorl. *Bot. Mag. t.* 471.

Var. *β.* flowering branches and style shorter. *Hook.* in *Suppl. to E. Bot. t.* 2774.

β. On the western declivity of Urris-beg mountain near Roundstone, Cunnamara, Sept. 1830, covering a space of nearly three acres. It has since been found by John Wynne, Esq. of Hazle-wood, and others in the wild district of Erris, County of Mayo. *Fl.* March, April. ♄. An upright much branched *shrub* from two to four feet high, more compact and less luxuriant in growth than var. α. cultivated in gardens.

5. Arbutus. *Linn.* Strawberry-tree.

Calyx deeply 5-cleft. *Corolla* ovate. *Berry* superior, 5-celled, many-seeded.—Name, according to Theis, from *ar*, *rough* or *austere*, and *boise*, a *bush* in Celtic.

Decandria. Monogynia.

1. A. *Unedo*, Linn. *Strawberry-tree.* Stem arboreous; leaves elliptic-lanceolate, serrated; panicles terminal; berries granulated. *Br. Fl.* 1. *p.* 188. *E. Fl. v.* ii. *p.* 252. *E. Bot. t.* 2377.

Plentiful in the woods of Mucruss, and in all the islands in the lower and upper lakes of Killarney, as well as at Glengariff, near Bantry, generally among limestone rocks. About most of the mountain lakes in the barony of Beer, certainly indigenous; *Mr. J. Drummond. Fl.* Oct. The fruit ripens in the following October or November. ♄.—In 1805, when I first visited Killarney, I measured a tree of this beautiful evergreen in Rough-island opposite to O'Sullivan's Cascade, whose stem was nine feet and a half in girth. A single tree of the scarlet flowered variety was pointed out to me near the entrance to Glengariff growing on red slate. The *flowers* are large, in the common variety, pale-greenish white. The *fruit* red and not ungrateful to the taste when fully ripe. Black-birds and thrushes are very fond of them.

2. A. *Uva Ursi*, Linn. *Red Bear-berry.* Stems procumbent; leaves obovate, entire, evergreen; racemes terminal. *Br. Fl.* 1. *p.* 189. *E. Fl. v.* ii. *p.* 253. *E. Bot. t.* 714.—*Arctostaphyllos Uva Ursi, Sprengl. Lindl.*

Very abundant on the limestone mountains, barony of Burren, County of Clare, and on several mountains in Cunnamara. At Fairhead, County of Antrim; *Mr. Templeton. Fl.* May. ♄.—*Stems* very long and trailing. *Leaves* obovate, stiff, rigid, glabrous, their margins revolute. *Flowers* in small crowded racemes, terminal, of a beautiful rose-colour. *Berry* small, red, austere, mealy; eaten by Moor fowl.

Ord. 49. PYROLACEÆ. *Lindl.* Pyrola Family.

Calyx 5-leaved, persistent, free. Corolla monopetalous, hypogynous, regular, deciduous, 4 or 5-toothed, with an imbricated æstivation. Stamens hypogynous, twice as numerous as the divisions of the corolla: anthers 2-celled, opening by fissures or pores, with or without appendages. Ovary superior, 4—5-celled, many-seeded, with an hypogynous disk: style 1, straight or declinate: stigma simple. Fruit capsular, 4—5-celled, dehiscent, with central placentas. Seeds indefinite, very minute: testa large, loose and reticulated. Albumen fleshy. Embryo at one extremity of the albumen.—*Herbaceous, rarely frutescent plants. Leaves simple, often wanting.*

1. PYROLA. *Linn.* Winter-green.

Calyx 5-cleft. *Petals* 5, often connected at the base. *Anthers* opening with two pores. *Capsules* superior, 5-celled, dehiscing at the angles of the base. *Seeds* numerous, invested with a long arillus.—Name from *Pyrus*, a *pear*, from a fancied resemblance in its leaves to those of a *Pear-tree*.

Decandria. Monogynia.

1. P. *rotundifolia*, Linn. *Round-leaved Winter-green.* Flowers drooping, racemed; leaves obovate-orbicular, slightly crenate; style bent down, curved upwards at the extremity, much longer than the ascending stamens. *Br. Fl.* 1. *p.* 187. *E. Fl. v.* ii. *p.* 255. *E. Bot. t.* 213.

Moist woods and bushy places in the northern counties. On a steep bank by the side of a mountain river near Garvagh, County of Derry in July, 1835, growing along with *P. minor* and *P. secunda ; Mr. D. Moore*, who sent me fine specimens of all the three. *Fl.* July—Sept. ♃.—"The largest of the *Pyrolæ* with white spreading *flowers*, well distinguished by the direction and relative length of its *stamens* and *style*. The latter is more than twice as long as the fully formed capsule, and it is singularly curved. *Stigma* with five erect points." *Hooker*.

2. P. *media*, Swartz. *Intermediate Winter-green.* Leaves nearly orbicular; stamens erect, much shorter than the straight and slightly decurved style; stigma with five erect points. *Br. Fl.* 1. *p.* 187. *E. Fl. v.* ii. *p.* 256. *E. Bot. t.* 1945. *Hook. Lond. t.* 30.

In Newtownards Park, and several places in the County of Antrim ; *Mr. Templeton. Fl.* July, Aug. ♃.—"*Peduncle* spirally twisted. *Flowers* pendulous, globose, white, with a pink tinge." *(Smith.)*—I insert this species on the authority of the late Mr. Templeton not having yet seen Irish specimens of it.

3. P. *minor*, Linn. *Lesser Winter-green.* Leaves ovato-rotundate, crenate, stamens erect as long as the very short style which is included within the flower; stigma large, with five divergent rays. *Br. Fl.* 1. *p.* 187. *E. Fl. v.* ii. *p.* 257. *E. Bot. t.* 158. (not good). *Hook. in Fl. Lond. t.* 154.—*P. rosea, E. Bot. t.* 2543.

On the northern side of Slemish mountain, and at Glenarm among heath ; *Mr. Templeton*. Mountain Glen near Garvagh and other places in the County of Derry ; *Mr D. Moore*. In woods at Ardshouse near Dunfanaghy, also at Banagher, on the Owenbeg river, County of Derry, near the fall called Linapaste; *Mr. E. Murphy*. The most common species in Ireland. *Fl.* July. ♃.—Well characterized by the shortness of its *style*, and large radiated *stigma*, quite included within the concave *corolla*. The figure given as *P. rosea* in *E. Bot.* is a good representation of this species.

4. P. *secunda*, Linn. *Serrated Winter-green.* Flowers all leaning one way, racemed; leaves ovate, serrated. *Br. Fl.* 1. *p.* 186. *E. Fl. v.* ii. *p.* 257. *E. Bot. t.* 207.

Rare in Ireland. In a Mountain Glen near Garvagh, County of Derry; *Mr. D. Moore. Fl.* July. ♃.—*Stems* rather straggling, branched. *Peduncles* 4—5 inches high, with several oval scales or *bracteas*. *Flowers* small, greenish-white. *Petals* erect. *Style* much protruded. *Stigma* 5-lobed.

2. Monotropa. *Linn.* Bird's-nest.

Perianth single, of 4—5 leaves, cucullate at the base. *Anthers* 1-celled, 2-lipped. *Capsule* superior, 4—5-celled. *Seeds* numerous, invested with a long *arillus*.—Named from *μονος*, *one*, and *τρεπω*, *to turn*, the flowers all pointing one way.

Decandria. Monogynia.

1. M. *Hypopitys*, Linn. *Yellow Bird's-nest.* Flowers in a drooping cluster; lateral ones with eight stamens, terminal one with ten. *Br. Fl.* 1. *p.* 186. *E. Fl. v.* ii. *p.* 249. *E. Bot. t.* 713.

Beech and Fir-woods, where the soil is dry. St. Catherine s woods, County of Dublin, and Moore Abbey, County of Kildare; *Doctor Wade. Fl.* June, July. ♃.—*Plant* succulent of a uniform yellowish colour. *Stem* five to eight inches high. *Leaves* resembling scales.

Ord. 50. APOCYNEÆ. *Br.* Apocynum Family.

Calyx of 5 divisions, persistent. Corolla monopetalous, hypogynous, regular, 5-lobed, with an imbricated æstivation, deciduous. Stamens 5, situated on the corolla, and alternate with the segments of the limb: filaments distinct: anthers 2-celled, opening longitudinally; pollen granular, immediately applied to the stigma. Ovaries 2 or 1, 2-celled, generally many-seeded: styles 2 or 1: stigma 1. Pericarp a follicle or capsule, drupe or berry, double or single. Seeds generally without albumen. Embryo foliaceous. Plumule inconspicuous.—*Trees, shrubs (or herbaceous plants), often milky. Leaves opposite, sometimes verticillate, rarely scattered, entire, frequently with interpetiolary cilia which are glandular. Inflorescence somewhat corymbose.*

1. Vinca. *Linn.* Periwinkle.

Calyx 5-parted. *Corolla* salver-shaped, the segments oblique, spirally imbricated in the bud. *Follicles* 2, erect. *Seeds* naked.—Name supposed from *Vincio*, to *bind*, as the trailing stems do the plants which grow in its neighbourhood.

Pentandria. Monogynia.

1. V. *minor*, Linn. *Lesser Periwinkle.* Stems procumbent; leaves elliptic-lanceolate, smooth-edged; flowers stalked; segments of the calyx lanceolate. *Br. Fl.* 1. *p.* 98. *E. Fl. v.* i. *p.* 338. *E. Bot. t.* 917.

Hedge-banks and woods. Woods at Castle-hyde, County of Cork; *Mr. J. Drummond.* Woods near Chapelizod, scarcely indigenous. *Fl.* May, June. ♃.—*Stems* round, of a woody texture, trailing. *Leaves* of a dark shining green. *Flowers* solitary, an inch wide, violet blue; rarely white.

2. V. *major.* Linn. *Greater Periwinkle.* Stems ascending; leaves ovate, fringed; flowers stalked; segments of the calyx bristle-shaped, elongated. *Br. Fl.* 1. *p.* 98. *E. Fl. v.* i. *p.* 339. *E. Bot. t.* 514.

In hedges, woods and old Church-yards, often planted. *Fl.* May. ♃.—Twice the size of the former in all its parts. *Flowers* generally of a pale blue. *Corolla* often fringed with coarse hairs.

ORD. 51. GENTIANEÆ. *Juss.* Gentian Family.

Calyx monophyllous, divided, persistent. Corolla monopetalous, hypogynous, often regular, marcescent or deciduous; the limb divided, equal, the lobes agreeing in number with the segments of the calyx, generally 5, sometimes 4—8, with an imbricated æstivation. Stamens situated upon the corolla, equal in number to the segments and alternating with them, some rarely abortive. Ovary 1, 1—2-celled, many-seeded. Style 1, or 2, more or less connate: stigmas 1—2. Capsule sometimes a berry, many-seeded, 1—2-celled, often 2-valved, with the margins of the valves introflexed, and in the 1-celled pericarps bearing the seeds, in the 2-celled ones they are inserted upon a central placenta. Seeds small. Embryo straight, in the axis of a soft, fleshy albumen: radicle directed to the hilum.—*Herbs, or rarely shrubs, generally glabrous, with opposite, entire, exstipulate leaves. Flowers terminal or axillary.*

1. EXACUM. *Linn.* Gentianella.

Calyx 4-cleft. *Corolla* 4-cleft, salver-shaped, marcescent, the tube swelling. *Anthers* opening longitudinally. *Stigma* entire. *Capsule* 1-celled, 2-valved. *Seeds* attached to two sutural receptacles, which at length separate with the opening of the two valved-capsule.—Name, εξ, *out*, and αγω, to *conduct*, anciently applied to the *Erythrea Centaurium*, a genus allied to this, and which was supposed to have the property of ejecting poison from the stomach.

Tetrandria. Monogynia.

1. E. *filiforme*, Sm. *Least Gentianella.* Leaves linear-

lanceolate, sessile; stem dichotomous, slender; peduncles elongated. *Br. Fl.* 1. *p.* 66. *E. Fl. v.* i. *p.* 212. *E. Bot. t.* 235.

Sandy turf-bogs, near Bantry; *Miss Hutchins, Mr. J. Drummond,* and *Mr. W. Wilson. Fl.* July. ⊙.—A small slender graceful plant, with yellow flowers, differing from *Gentiana* in the number of the stamens, and the divisions of the calyx and corolla.

2. ERYTHRÆA. *Renealm.* Centaury.

Calyx 5-cleft. *Corolla* funnel-shaped, withering, with a short limb. *Stamens* 5. *Anthers* when burst becoming spiral. *Style* erect. *Stigmas* 2, roundish. *Capsule* linear, 2-celled. *R. Br.*—Name from ερυθρος, *red,* the colour of the flowers in most of the species. *Pentandria. Monogynia.*

1. E. *Centaurium,* Pers. *Common Centaury.* Stem nearly simple; panicle forked, corymbose; leaves ovato-lanceolate; calyx half the length of the tube; its segments partly combined by a membrane. *Br. Fl.* 1. *p.* 92. *E. Fl. v.* i. *p.* 320. *E. Bot. t.* 417.—*Gentiana Centaurium, Linn.*

Dry pastures, frequent. *Fl.* July, Aug. ⊙.—8—10 inches to a foot high. *Root-leaves* spreading, three-nerved, broader than those of the stem, which are in distant pairs. *Panicles* of *flowers* fascicled near the top of the stem, and forming a sort of corymb. *Corolla* rose-colour.

2. E. *pulchella,* Hook. *Dwarf branched Centaury.* Stem much branched; leaves ovate-oblong; flowers pedicellate in lax panicles; calyx nearly as long as the tube of the corolla. *Hook. Br. Fl.* 1. *p.* 92. *E. Fl. v.* i. *p.* 322.—*Chironia pulchella, Willd.*—*E. Bot. t.* 458.—*Gentiana pulchella, Swartz.*—*G. Centaurium β. Linn.*

Sandy sea-shores, &c. On Cape Clear Island; *Mr. J. Drummond.* On rocky ground below Bangor, County of Down; *Mr. Templeton. Fl.* Aug. Sept. ⊙.—*Stems* 2—4 or 6 inches high, slender and much branched from the base. *Panicle* spreading, leafy, dichotomous, with a single flower-stalk between the branches.—Probably only a variety of the preceding, as Doctor Hooker well remarks.

3. E. *littoralis,* Hook. *Dwarf tufted Centaury.* Stem simple or branched; leaves ovate-oblong; flowers sessile, capitato-paniculate; calyx as long as the tube, deeply cleft. *Hook. Br. Fl.* 1. *p.* 92. *E. Fl. v.* i. *p.* 320.—*Chironia littoralis, Turn. and Dillw. Bot. Guide, p.* 469. *E. Bot. t.* 2305.

Portmarnock sands. *Fl.* June—July. ⊙.—*Stem* about two inches high; leaves nearly uniform. I agree with Doctor Hooker in thinking this species not permanently distinct from *E. Centaurium,* which at Portmarnock varies very much in appearance.

4. E. *latifolia,* Sm. *Broad-leaved tufted Centaury.* Stem 3-cleft at the top; flowers in dense forked tufts; calyx as long as

the tube; segments of the corolla lanceolate; lower leaves broadly elliptic, with five or seven ribs. *Hook. Br. Fl.* 1. *p.* 93. *E. Fl. v.* i. *p.* 321. *E. Bot. Suppl. t.* 2718.—*Chironia Centaurium, var.* 2. *Sm. Fl. Brit. p.* 1393.

On Portmarnock sands growing along with *E. Centaurium* and is perhaps only a stunted variety of that species, with broader leaves. County of Down; *Mr. Thomas Drummond. Hook. Fl.* July. ⊙.

3. GENTIANA. *Linn.* Gentian.

Calyx 4 or 5-cleft. *Corolla* funnel-shaped or hypocrateriform, 4 or 5-cleft, with the orifice naked. *Stamens* 5. *Stigma* 2-lobed. *Seed* not bordered. *R. Br.*—Named from *Gentius*, King of Illyria, who, according to Pliny, brought into use the species that is so much valued in medicine as the *bitter Gentian, G. lutea.* *Pentandria. Digynia.*

1. G. *verna*, Linn. *Spring Gentian.* Corolla 5-cleft, salver-shaped; segments auricled at the base; leaves crowded, ovate. *Br. Fl.* 1. *p.* 111. *E. Fl. v.* ii. *p.* 29. *E. Bot. t.* 493.

In barren mountainous situations on a calcareous soil. Plentiful on the Burren mountains near Gort. On hilly grounds about eight miles west of Tuam, in great abundance; *Mr. John M^c Greggor. Fl.* April. ♃.—Much smaller in all its parts than *G. acaulis* of the gardens and readily distinguished from it by its salver-shaped *corolla;* that of the other being subcampanulate, and not found in a wild state in Ireland. *Stem* shorter, central, leafy, bearing a single flower, with a bright blue corolla.

2. G. *Amarella*, Linn. *Autumnal Gentian.* Corolla salver-shaped, 5-cleft; bearded in the throat; segments of the calyx nearly equal; stem flowering from top to bottom, with short axillary branches. *Br. Fl.* 1. *p.* 111. *E. Fl. v.* ii. *p.* 30. *E. Bot. t.* 236.

Pastures, particularly in subalpine situations. Mr. Templeton found this and the following species with double flowers, about Cave-hill and other places in the County of Antrim. *Fl.* June—Sept. ⊙.—From three inches to a foot high, and covered with *flowers* of a pale purplish blue.

3. G. *campestris*, Linn. *Field Gentian.* Corolla salver-shaped, 4-cleft; bearded in the throat; two outer segments of the calyx ovate, very large. *Br. Fl.* 1. *p.* 111. *E. Fl. v.* ii. *p.* 31. *E. Bot. t.* 237.

Hilly pastures, particularly near the coast, most frequent on a limestone soil. *Fl.* Aug.—Oct. ⊙—Very similar to the last in general habit; but with larger *flowers*, which are of a paler blue. On the grassy tops of Magilligan rocks, County of Derry, which are composed of basalt, I found in pretty great abundance a variety with white flowers.

4. CHLORA. *Linn.* Yellow-wort.

Calyx 8-parted. *Corolla* hypocrateriform; the tube short, the limb 8-parted. *Stamens* 8, very short, inserted in the orifice. *Style* 1. *Stigma* 4-cleft. *Capsule* 1-celled.—Name derived from *χλωρος*, *pale* or *yellowish-green*, in allusion to the colour of its flowers. *Octandria. Monogynia.*

1. C. *perfoliata*, Linn. *Perfoliate Yellow-wort.* Leaves perfoliate; panicle forked, many-flowered. *Br. Fl.* 1. *p.* 174. *E. Fl. v.* ii. *p.* 218. *E. Bot. t.* 60.

Plentiful in the County of Dublin, chiefly on a limestone soil; (it is however found in fields about Kingstown over granite.) At the marble quarries near Kilkenny, and in Lord Desert's demesne. South Isles of Arran; *Messrs. Ball and Thomson.* Not found in the northern counties or in Scotland. *Fl.* July—Sept. ⊙.

§ *Menyantheæ.*

Leaves alternate, usually toothed or divided.

5. MENYANTHES. *Linn.* Buck-bean.

Calyx 5-parted. *Corolla* funnel-shaped; the limb spreading, 5-parted, bearded internally, with a simple margin. *Stigma* capitate, with from two to five furrows. *Glands* 5, hypogynous, alternate with the stamens. *Capsule* 1-celled, 2-valved; the valves bearing the seed in their axis. *Leaves* ternate.—Name *μηνη*, a *month*, and *ανθος*, a *flower*. Sir J. E. Smith says the blossoms continue in perfection about a month. *Pentandria. Monogynia.*

1. M. *trifoliata*, Linn. *Common Buck-bean.* Leaves ternate; disk of the corolla densely shaggy. *Br. Fl.* 1. *p.* 91. *E. Fl. v.* i. *p.* 274. *E. Bot. t.* 495.

Marshy places, boggy ground, &c. frequent. *Fl.* June, July. ♃.—*Roots* densely creeping and matted, so as often to render the boggy ground firm where the plant grows. *Leaves* ternate, stalked; *leaflets* obovate, obscurely toothed. The base of the leaf is sheathing, whence arises a *flower-stalk* supporting a compound *raceme* or *thyrsus*, of many white *flowers*, tipped externally with red and beautifully fringed with white filaments within. "In the Highlands of Scotland, employed as tea, it is considered to strengthen weak stomachs. It cures the disease called *darn* in cattle; and is sometimes used as a substitute for hops, (*Mr. Gibb.*) All these qualities indicate the bitter principle which abounds so much in the *Gentian tribe*." *Hooker.*

5. VILLARSIA. *Vent.* Villarsia.

Calyx 5-parted. *Corolla* somewhat rotate, the limb spreading, 5-parted, smooth in the disk, bearded or scaly at the base, with an inflexed margin. *Stamens* 5, alternate with the segments. *Style* 1. *Stigma* 2-lobed; the lobes toothed. *Glands* 5, hypogynous, alternate with the stamens. *Capsule* 1-celled, 2-valved, many-seeded, (in the floating species indehiscent;) the valves bearing the seeds in their axis.—*Leaves simple. R. Br.*—Named in compliment to *M. de Villars*, author of *Flore du Dauphine.* *Pentandria. Monogynia.*

1. V. *nymphœoides*, Vent. *Nymphœa like Villarsia.* Leaves heart-shaped, wavy at the edges, floating; corolla fringed. *Br. Fl.* 1. *p.* 92. *Hook. in Fl. Lond. N. S. t.* 168.—*Menyanthes nymphœoides, Linn.*—*E. Bot. t.* 217.

Naturalized in the Laggan a little above the Belfast Botanic Garden, and near Lurgan. *Fl.* July, Aug. ♃.—A beautiful plant, and difficult to be eradicated. *Flowers* large, yellow, curiously plaited.

ORD. 52. SOLANEÆ. *Juss.* Nightshade Family.

Calyx 5-parted, seldom 4-parted, persistent, inferior. Corolla monopetalous, hypogynous; the limb 5-cleft, seldom 4-cleft, regular, or somewhat unequal, deciduous; the æstivation, in the genuine genera of the order, plaited; in the spurious genera, imbricated. Stamens inserted upon the corolla, as many as the segments of the limb, with which they are alternate; one sometimes being abortive. Pericarpium with 2 or 4 cells, either a capsule with a double dissepiment parallel with the valves, or a berry, with the placentæ adhering to the dissepiment. Seeds numerous, sessile. Embryo more or less curved, often out of the centre, lying in fleshy albumen; radicle next the hilum.—*Herbaceous plants or shrubs. Leaves alternate, undivided, or lobed; the floral ones sometimes double, and placed near each other. Inflorescence variable, often out of the axillæ; the pedicels without bracteæ.*

The plants of this order are eminently narcotic and exciting, many of them dangerous poisons; which qualities, however, vary in degree in different individuals: thus, what exists in the Potatoe is dissipated by heat, and the tubers are rendered quite wholesome.

1. DATURA. *Linn.* Thorn-apple.

Calyx tubular, ventricose, with 5 angles, 5-toothed, diciduous, leaving behind a broad orbicular base. *Corolla* funnel-shaped; the tube long; the limb with 5 angles, 5 plaits, and 5 points. *Stamens* 5. *Stigma* of 2 plates. *Capsule* echinate or smooth, 2-celled; the cells divided occasionally by spurious dissepiments.—Name from its Arabic appellation *Tatorah*, (Forskal). In some parts of the East Indies too, it is called *Daturo.* *Pentandria. Monogynia.*

1. D. *Stramonium*, Linn. *Common Thorn-apple*. Fruit spinous, ovate, erect; leaves ovate, smooth, sinuated. *Br. Fl.* 1. *p.* 93. *E. Fl. v.* i. *p.* 314. *E. Bot. t.* 1288.

Waste ground in the neighbourhood of towns, occasionally, where the seeds have probably escaped from gardens. *Fl.* July. ⊙.—Well known for its narcotic properties and was much used in London, Dublin, and other places several years ago as a cure for *asthma*, smoked like tobacco.

2. Hyoscyamus. *Linn.* Henbane.

Calyx tubular, 5-cleft. *Corolla* funnel-shaped, the limb spreading, obliquely 5-lobed, unequal. *Stigma* capitate. *Capsule* compressed, furrowed on each side, opening at the apex by a transverse aperture.—Name from *ὑς*, *ὑος*, a *Hog*, and *κυαμος*, a *bean*. Hogs are said to eat the fruit, which bears some resemblance to a bean. The seeds do not prove injurious, though the plant be esteemed poisonous.

Pentandria. Monogynia.

1. H. *niger*, Linn. *Common Henbane*. Leaves sinuated, clasping the stem; flowers sessile. *Br. Fl.* 1. *p.* 94. *E. Fl. v.* i. *p.* 315. *E. Bot. t.* 591.

On waste grounds, and dry gravelly or sandy commons, especially near the coast. *Fl.* July. ⊙.—*Leaves* sharply lobed, soft, downy, and viscid, exhaling a powerful and very disagreeable odour, like all the rest of the plant. *Flowers* numerous from the bosoms of the upper leaves. *Corolla* straw colour, pencilled with dark purple veins. *Plant* highly narcotic.

3. Verbascum. *Linn.* Mullein.

Calyx 5-parted. *Corolla* rotate, 5-lobed, unequal. *Stamens* 5, unequal; *filaments* declinate, almost always villous at the base. *Capsule* with two valves, ovate or globose.—Name altered from *Barbascum*, from *Barba*, a beard; in allusion to the shaggy nature of its foliage.

Pentandria. Monogynia.

1. V. *Thapsus*, Linn. *Great Mullein or Shepherd's-club*. Leaves decurrent, crenate, woolly on both sides; stem simple; cluster dense; flowers almost sessile. *Br. Fl.* 1. *p.* 95. *E. Fl. v.* i. *p.* 308. *E. Bot. t.* 549.

Banks and waste ground in light sandy, or gravelly soils, in many places. *Fl.* July, Aug. ♂.—*Stem* four or five feet high, angular, winged. *Leaves* thick, excessively woolly, ovate or oblong. *Spike* long, cylindrical. *Flowers* handsome, golden yellow. Three of the stamens are hairy; two longer ones glabrous.—The *leaves* boiled in milk are much used by the peasantry in hæmorrhoidal complaints.

2. V. *virgatum*, With. *Large-flowered Primrose leaved Mullein*. Leaves ovato-lanceolate, toothed, sessile; radical ones downy, somewhat lyrate; stem branched; flowers aggre-

gate, partly sessile. *Br. Fl.* 1. *p.* 95. *E. Fl. v.* i. *p.* 311. *E. Bot. t.* 550.

Fields and by road-sides, rare. On the College grounds at West Green-lane near Kenmare in 1804, where it had been previously noticed by Doctor George Clarke, who accompanied me to Killarney in that year. *Fl.* Aug. ♂.—*Stem* five or six feet high, winged from the partially decurrent *leaves*. *Flowers* large, bright yellow.

4. SOLANUM. *Linn.* Nightshade.

Calyx persistent, with from five to ten divisions. *Corolla* monopetalous, rotate. *Anthers* opening with two pores at the extremity. *Berries* roundish, two or more celled.—Name of doubtful origin. According to some from *Solamen*, on account of the *comfort* or *solace* derived from some species as a medicine. *Pentandria. Monogynia.*

1. S. *Dulcamara*, Linn. *Woody Nightshade, or Bitter-sweet.* Stem shrubby, zigzag, without thorns; upper leaves hastate; clusters cymose. *Br. Fl.* 1. *p.* 94. *E. Fl. v.* i. *p.* 317. *E. Bot. t.* 592.

Hedges and waste places. In hedges near Dublin, frequent. Near Belfast; *Mr. Campbell.* The hairy leaved variety grows on the coast near Rynville, Cunnamara. *Fl.* June, July. ♄.—*Flowers* purple, with two green tubercles at the base of each segment. *Anthers* large, yellow, united into a pyramidal or cone-shaped figure.

2. S. *nigrum*, Linn. *Common or Garden Nightshade.* Stem herbaceous, without thorns; leaves ovate, bluntly toothed or wavy; umbels lateral, drooping. *Br. Fl.* 1. *p.* 94. *E. Fl. v.* i. *p.* 318. *E. Bot. t.* 566.

Waste places and old dung-hills near Dublin. In Copeland Islands, County of Antrim, and on the main land opposite; *Mr. Campbell. Fl.* July. ⊙.

5. ATROPA. *Linn.* Dwale.

Calyx campanulate, 5-cleft. *Corolla* campanulate, twice as long as the calyx, 5-lobed, equal. *Filaments* 5, filiform. *Berry* globose, seated in the calyx.—Name from *Atropos*, one of the fates, in allusion to its deadly quality. *Pentandria. Monogynia.*

1. A. *Belladonna*, Linn. *Common Dwale, or Deadly Nightshade.* Stem herbaceous; leaves ovate, undivided; flowers solitary. *Br. Fl.* 1. *p.* 94. *E. Fl. v.* i. *p.* 316. *E. Bot. t.* 592.

Hedges and waste places, especially among ruins near towns. At Stradbally by the brook, near the old Monastery; *Doctor Wade. Fl.* June. ♃.—*Flowers* lurid purple. *Berries* large, shining, violet-black, highly injurious when taken internally. Their effect are said to be best counteracted by drinking plentifully of vinegar.

ORD. 53. PRIMULACEÆ. *Vent.* Primrose Family.

Calyx divided, 5, rarely 4-cleft, regular, persistent. Corolla of 1 petal, hypogynous, regular, with the limb in 5, rarely 4, divisions. Stamens inserted upon the corolla, as many as there are calycine segments, and opposite to them. Ovary 1-celled: style 1: stigma capitate. Capsule valvate, with a free central placenta. Seeds numerous, peltate, albuminose. Embryo included, parallel with the hilum: radicle with no determinate direction.—*Herbaceous plants. Leaves usually opposite, either whorled or scattered.*

1. CENTUNCULUS. *Linn.* Chaffweed.

Calyx 4 or 5-parted. *Corolla* somewhat urceolate, 4 or 5-cleft, withering. *Stamens* 4 or 5, *filaments* beardless. *Capsule* globose, dehiscing by a transverse incision.—Name, it appears, anciently given to the *Pimpernel*, a genus allied to this, and derived, according to Theis, from *Cento*, a covering, because it was a little weed that covered the cultivated fields. *Tetrandria. Monogynia.*

1. C. *minimus*, Linn. *Chaffweed or Bastard Pimpernel.* Flowers sessile; corolla without glands at the base. *Br. Fl.* 1. *p.* 68. *E. Fl. v.* i. *p.* 217. *E. Bot. t.* 531.

Moist gravelly places, rare. Marshes at Glengariff. On the Ross Islands, County of Donegal; *Mr. E. Murphy.* Coast near Coleraine; *Mr. D. Moore. Fl.* June, July. ⊙.

2. GLAUX. *Linn.* Sea-Milkwort.

Calyx campanulate, 5-cleft, coloured. *Corolla* none. *Stamens* 5, hypogynous. *Stigma* capitate. *Capsule* with one cell and five valves. *Seeds* attached to a central globose placenta. *Embryo* straight, lying across the hilum. *De Cand.*—Name from γλαυκιον, given to a plant of a sea-green colour, or because it grew near the sea. *Pentandria. Monogynia.*

1. G. *maritima*, Linn. *Sea Milkwort, or Black Saltwort.*—*Br. Fl.* 1. *p.* 109. *E. Fl. v.* i. *p.* 336. *E. Bot. t.* 13.

Sea-shores, and muddy salt marshes, abundant. *Fl.* July. ♃.—*Stems* 2—5 inches long, stout, branched; often procumbent. *Leaves* opposite, ovate, glabrous, fleshy, entire, sessile, small. *Flowers* sessile, solitary, axillary, rose-coloured, with five, obtuse, spreading lobes.

3. PRIMULA. *Linn.* Primrose.

Calyx tubular, 5-toothed. *Corolla* salver-shaped, its tube cylindrical, its mouth open. *Capsule* ovate, dehiscing at the apex,

with five or ten teeth. *Seeds* minute, very numerous.—Name from *primus*, *first*, on account of the early appearance of the flowers in the commonest of the species.
Pentandria. Monogynia.

1. P. *vulgaris*, Hudson. *Common Primrose.* Leaves obovato-oblong, toothed, wrinkled; stalk single-flowered; limb of the corolla flat. *Br. Fl.* 1. *p.* 89. *E. Fl. v.* i. *p.* 270. *E. Bot. t.* 4.—*P. veris γ. acaulis, Linn.*

Woods, hedge-banks and pastures, abundant. *Fl.* April, May. ♃.—If the scapes are traced to their very base, they will be found to spring from one common point, and to constitute a sessile umbel.

2. P. *elatior*, With. *Oxlip Primrose.* Leaves toothed, wrinkled, contracted towards the middle; stalk many-flowered; limb of the corolla flat. *Br. Fl.* 1. *p.* 90. *E. Fl. v.* i. *p.* 270. *E. Bot. t.* 513.—*P. veris β. elatior, Linn.*

In pastures, frequent; especially in the County of Dublin. *Fl.* May, June. ♃.—*Flowers* numerous, sulphur-coloured or light red. The Polyanthus of which there are numerous varieties in gardens belong to this species.

3. P. *veris*, Linn. *Common Cowslip.* Leaves toothed, wrinkled, contracted towards the middle; stalk many-flowered; limb of the corolla concave. *Br. Fl.* 1. *p.* 90. *E. Fl. v.* i. *p.* 271. *E. Bot. t.* 5.—*P. veris a. officinalis, Henslow.*

Meadows and pastures, frequent. Very common in the County of Dublin. *Fl.* April, May. ♃.—Readily distinguished from the last by its smaller flowers with a concave limb. Many Botanists consider all the three species only varieties of P. *veris* as *Linnæus* has done. The two last are often found growing together in open fields. *P. acaulis* is generally found in sheltered situations under hedges and in thickets.

4. Lysimachia. *Linn.* Loosestrife.

Calyx 5-parted. *Corolla* rotate, 5-cleft. *Capsule* globose, with five or ten valves.—Name in honour of King *Lysimachus*, according to some; according to others from λυσις, a *dissolving*, μαχη, *battle*. The English name, it will be at once seen, has a similar meaning. Pliny says it tames restive horses. *Pentandria. Monogynia.*

* *Stalks many-flowered.*

1. L. *vulgaris*, Linn. *Yellow Loosestrife.* Clusters panicled, terminal; leaves ovato-lanceolate, acute. *Br. Fl.* 1. *p.* 88. *E. Fl. v.* i. *p.* 278. *E. Bot. t.* 176.

Sides of rivers and lakes, also in wet meadows, in the southern, northern and midland counties. Ballypheane bog, and Summerstown bog near Cork; *Mr. J. Drummond.* Frequent in the County of Down and on the low grounds near Lough Neagh, where many acres are covered with it; *Mr. J. Campbell. Fl.* July. ♃.—*Plant* erect, 2—3 feet high. *Leaves* nearly sessile, glabrous, or downy beneath. *Panicle* large; leafy, much branched. *Corollas* large, yellow, handsome.

* * *Stalks single-flowered.*

2. L. *nemorum*, Linn. *Yellow Pimpernel.* Leaves ovate, acute; flowers solitary; stems procumbent; stamens smooth. *Br. Fl.* 1. *p.* 89. *E. Fl. v.* i. *p.* 278. *E. Bot. t.* 527.

Woods and shady places, frequent. *Fl.* during the summer months. ♃.—*Stems* creeping at the base, red and pellucid. *Flowers* gold-coloured. Divisions of the *calyx* awl-shaped.

3. L. *Nummularia*, Linn. *Creeping Loosestrife.* Leaves somewhat heart-shaped; flowers solitary; stem prostrate, creeping; stamens glandular. *Br. Fl.* 1. *p.* 89. *E. Fl. v.* i. *p.* 279. *E. Bot. t.* 528.

Boggy pastures and borders of streams, rare. Summerstown bog near Cork; *Doctor Wood.* In marshy situations at the old camp, Loughlinstown, and moist woods at Collon; *Mr. J. White.* I have not seen Irish specimens. *Fl.* July. ♃.—*Leaves* pale green. *Flowers* lemon-coloured. *Calycine-leaves* ovate.

5. HOTTONIA. *Linn.* Water-Violet.

Calyx 5-parted. *Corolla* with a short tube, and a flat 5-lobed limb. *Stamens* inserted at the mouth of the tube. *Capsule* globose, crowned by the long persistent style.—Named after *Pierre Hotton*, a Professor at Leyden during the latter half of the seventeenth century. *Pentandria. Monogynia.*

1. H. *palustris*, Linn. *Water-Violet or Featherfoil.* Flowers whorled, on a long, solitary, cylindrical stalk; corolla longer than the calyx; leaves pectinated. *Br. Fl.* 1. *p.* 91. *E. Fl. v.* i. *p.* 276. *E. Bot. t.* 364.

Ditches and pools. First found in Ireland about eighteen years ago, in ditches or drains near Downpatrick by Doctor Kennedy, then a young and promising Botanist, who died shortly afterwards. *Fl.* June. ♃.—*Root* creeping. *Leaves* all submerged. *Flowers* large, handsome, pale-purple, rising above the water.

6. ANAGALLIS. *Linn.* Pimpernel.

Calyx 5-parted. *Corolla* rotate, 5-lobed. *Capsule* globose, bursting all round transversely.—Name from *αναγελαω*, *to laugh.* Pliny says the *Anagallis* excites pleasure; and Dioscorides that it removes obstructions of the liver which create sadness. *Pentandria. Monogynia.*

1. A. *arvensis*, Linn. *Common Pimpernel, or Poor Man's Weatherglass.* Leaves ovate, dotted beneath; stem procum-

bent; corolla minutely notched. *Br. Fl.* 1. *p.* 87. *E. Fl. v.* i. *p.* 280. *E. Bot. t.* 529.

Corn fields and sandy commons, frequent. *Fl.* June, July. ⊙.—*Flowers* bright scarlet, sometimes purplish pink when growing on sandy grounds, as is the case at Portmarnock where it is very abundant.

2. A. *cærulea*, Schreb. *Blue Pimpernel.* Leaves ovate, sessile, dotted beneath; margins of the corolla toothed, scarcely at all glandulose. *Br. Fl.* 1. *p.* 87. *E. Fl. v.* i. *p.* 280. *E. Bot. t.* 1823.

Corn fields near Warrenpoint, below Newry, where it was first pointed out to me in 1816, by Mrs. Lyne. *Fl.* June, July. ⊙.—Nearly allied to the last.

3. A. *tenella*, Linn. *Bog Pimpernel.* Leaves roundish, somewhat pointed, stalked; stem creeping; stigma acute. *Br. Fl.* 1. *p.* 89. *E. Fl. v.* i. *p.* 281. *E. Bot. t.* 530.

Wet mossy bogs and moist sandy places, frequent. Plentiful at Portmarnock, Howth, Glencree and other places near Dublin. Island Magee, and near Bangor; *Mr. Templeton* and *Mr. Campbell. Fl.* July, Aug. ♃.—A beautiful little plant, growing in large tufts. *Flowers* rose-colour, somewhat bell-shaped, on slender stalks.

† *Somewhat allied to Primulaceæ.*

7. SAMOLUS. *Linn.* Brook-weed.

Calyx half superior. *Corolla* somewhat campanulate, 5-lobed. *Stamens* 5, bearing anthers, and opposite the segments of the limb; five sterile, and alternate. *Capsule* half inferior, ovate, half 5-valved, 1-celled. *Placenta* central, loose. *Seeds* numerous, fixed by one end, albuminous. *Embryo* included; radicle next the umbilicus.—Name, some say from the island Samos, where *Valerandus* a botanist of the sixteenth century, is said to have gathered our *Samolus Valerandi.* Others, as Theis, from *San*, *salutary*, and *mos*, a *hog* in Celtic, because it was used by the ancients for the curing of diseases in hogs. *Pentandria. Monogynia.*

1. S. *Valerandi*, Linn. *Common Brook-weed.* Leaves obovate, obtuse; clusters corymbose, many-flowered; bracteas solitary, in the middle of each partial stalk. *Br. Fl.* 1. *p.* 98. *E. Fl. v.* i. *p.* 323. *E. Bot. t.* 703.

Marshy and watery places, especially in a gravelly soil. *Fl.* July. ♃.—*Stem* 8—10 inches high, rounded, glabrous, as well as the ovate, subpetiolate, and entire fleshy leaves. *Flowers* small, white. *Calyx* small, 5-cleft, persistent; the segments surmounting the rounded capsule.

ORD. 54. LENTIBULARIÆ. *Rich.* Butterwort Family.

Calyx divided, persistent. Corolla monopetalous, hypogynous, irregular, spurred and 2-lipped. Stamens 2, included, inserted at the bottom of the corolla. Ovary 1-celled: style 1, very short: stigma 2-lipped. Capsule 1-celled, many-seeded, with a large central placenta. Seeds small, without albumen: embryo sometimes undivided.—*Aquatic or marsh, herbaceous plants, with the radical leaves undivided or compound, root-like, and bearing bladders. Scapes with stipuliform, minute scales, or destitute of them, sometimes with whorled vesicles, usually undivided, single-flowered, or with many-flowered racemes or spikes. Flowers with a single bractea or rarely none.*

1. PINGUICULA. *Linn.* Butterwort.

Calyx 2-lipped, upper lip of three, lower of one, bifid segment. *Corolla* ringent; spurred. *Germen* globose. *Stigma* large, of two unequal plates or lobes. *Capsules* 1-celled, with the seeds attached to a central receptacle.—Name from *pinguis, fat;* the leaves being thick and greasy to the touch.

Diandria. Monogynia.

1. P. *vulgaris,* Linn. *Common Butterwort.* Spur cylindrical, acute, as long as the very irregular petal; segments of the calyx oblong; capsule ovate. *Br. Fl.* 1. *p.* 8. *E. Fl. v.* i. *p.* 28. *E. Bot. t.* 70.

Bogs, moist banks and heaths, abundant, least frequent in the southern counties. *Fl.* June. ♃.—*Foliage* covered with minute raised crystaline points, all radical, fleshy, the margins involute. *Scapes* single-flowered. *Flowers* purple, very handsome, drooping; palate covered with white, compactly jointed hairs. *Anthers* 1-celled, vertical, placed just beneath the large horizontal plate or lobe of the stigma. *Style* short. *Caps.* ovate, one-celled, bursting half way into two valves. *Seeds* numerous, oblong, rough.—The *leaves* are said to coagulate milk, whence the English name.

2. P. *grandiflora,* Willd. *Large-flowered Butterwort.* Spur cylindrical, acute, as long as the nearly regular, five-cleft, veiny petal; segments of the calyx ovate, obtuse; capsule ovate. *Br. Fl.* 1. *p.* 8. *E. Fl. v.* i. *p.* 29. *E. Bot. t.* 2184.

Western part of the County of Cork, in marshy ground; *Mr. J. Drummond.* Near Kenmare; *Mr. W. Wilson. Fl.* May. ♃.—This plant, apparently as rare upon the continent as in Britain, and perfectly distinct from *P. vulgaris,* may be easily cultivated for a succession of years. As in the *P. vulgaris,* the old leaves die away in winter, and buds or hybernacula are formed, which expand into perfect individuals in the spring. " Few plants can exhibit a more beautiful appearance, early in the year, than a cluster of *P. grandiflora,* blossoming under the shelter of a common frame. It is a mass of large deep and rich purple-coloured flowers, well contrasted with the pale but bright hue of the leaves." *Hooker.*

3. P. *lusitanica,* Linn. *Pale Butterwort.* Spur cylindrical, obtuse, decurved, shorter than the almost equal limb of the corolla; leaves veiny, and, as well as the scape hairy. *Br. Fl.* 1. *p.* 8. *E. Fl. v.* i. *p.* 28. *E. Bot. t.* 145.

Boggy grounds in mountainous situations in many parts of the country. County of Antrim; *Mr. Templeton.* Mourne mountains; *Mr. Hyndman.* County of Cork; *Rev. Doctor Hincks.* Achil, Croaghpatrick and Nephin, County of Mayo; *Messrs. Thomson and Ball.* Plentiful in Kerry; Swanlinbar mountains near Florencecourt, and in Cunnamara; also near the Three-rocked mountain above Dundrum, and in various parts of the County of Wicklow. *Fl.* June, July. ♃.

2. Utricularia. *Linn.* Bladder-wort.

Calyx of two sepals, the lips equal and undivided. *Corolla* personate; the lower lip spurred at the base. *Stigma* bilabiate. *Capsule* globose, of one cell. *Seeds* fixed to a central receptacle.—Name from *Utriculus,* a little bladder.

Diandria. Monogynia.

1. U. *vulgaris,* Linn. *Bladder-wort, or Hooded Milfoil.* Spur conical; stalk straight; cluster somewhat corymbose; upper lip of the corolla the length of the palate, reflexed at the sides. *Br. Fl.* 1. *p.* 9. *E. Fl. v.* i. *p.* 30. *E. Bot. t.* 253.

Ditches and deep pools, not unfrequent. *Fl.* June, July. ♃.—*Shoots* or runners floating horizontally in the water, clothed with capillary multifid leaves, bristly at the margin, and bearing little cristate bladders. *Scape* erect, four to six inches high or more, with six or eight yellow *flowers* in a raceme.

2. U. *intermedia,* Hayne. *Intermediate Bladder-wort.* Spur conical; stalk two or three-flowered; upper lip of the corolla flat, twice as long as the palate; leaves with deep, forked, flat segments; bladders separate from the leaves. *Br. Fl.* 1. *p.* 9. *E. Fl. v.* i. *p.* 30. *E. Bot. t.* 2489.

Ditches and bog-holes, or deep pools. First found in Ireland in the County of Fermanagh by the late Doctor R. Scott. Bog-holes filled with water at Mucruss, Killarney, 1805, where it has subsequently been found by *Mr. W. Wilson.* Ballynahinch, County of Down; *Mr. Templeton. Fl.* June, July. ♃.—*Flowers* smaller than the last, of a pale yellow, and have a longer lip. The *stems* are more leafy, and the bladders proceed from branched stalks, not from the leaves.

3. U. *minor,* Linn. *Lesser Bladder-wort.* Spur short, obtuse, keeled, deflexed; cluster of few flowers; corolla gaping; palate nearly flat; lips undivided. *Br. Fl.* 1. *p.* 9. *E. Fl. v.* i. *p.* 30. *E. Bot. t.* 254.

Ditches and pools. Plentiful in bog-holes and small lakes in Cunnamara. Common in the county of Derry; *Mr. D. Moore.*

Near Grey Abbey; *Mr. Templeton.* Near Bantry; *Mr. J. Drummond.* *Fl.* June, July. ♃.—Smaller than the last. *Vesicles* mixed with the leaves, which are glabrous at the margin. *Flowers* very pale yellow and small. *Spur* scarcely any. *Lower* lip almost plane; palate scarcely closing the mouth, not projecting beyond the lip. "The British species of this genus are all aquatics; and the roots, stems, and even leaves are furnished with numerous membranaceous, reticulated *vesicles*, which according to Hayne, are filled with water, till it is necessary the plant should rise to the surface, and expand its blossoms above the fluid. The *vesicles* are then found to contain air only, by aid of which the plant floats: this air again in the autumn gives place to water, and the plant descends to ripen its seeds at the bottom of the water. Aquatic insects are often seen in these bladders." *Hooker.*

Ord. 55. SCROPHULARINEÆ. *Juss.* Figwort Family.

Calyx divided, persistent, inferior. Corolla monopetalous, hypogynous, usually irregular, deciduous, with an imbricated æstivation. Stamens 2, or 4, didynamous, very seldom equal. Ovarium superior, 2-celled, many-seeded. Style 1. Stigma 2-lobed. Fruit capsular, very seldom succulent, with from 2 to 4 valves, which are either entire or bifid; the dissepiment either double, arising from the incurved margins of the valves, or simple, and, in that case, either parallel with, or opposite to, the valves. Placentæ central, either adhering to the dissepiment or separating from it. Seeds indefinite. Embryo included within fleshy albumen; radicle turned towards the hilum.—*Herbaceous plants, seldom shrubs, with opposite leaves. Inflorescence very variable.*

Generally acrid bitter plants, frequently employed as purgatives or emetics.

1. Veronica. *Linn.* Speedwell.

Calyx 4 or 5-parted. *Corolla* rotate; the limb 4-parted, unequal, with entire lobes. *Capsule* either separable in two, or bearing the septa in the middle of the valves.—Name of doubtful origin. *Diandria. Monogynia.*

* *Spikes or racemes terminal. Roots perennial.*

1. V. *serpyllifolia*, Linn. *Thyme-leaved Speedwell.* Raceme somewhat spiked, many-flowered; leaves broadly ovate, or elliptical, very obtuse, nearly entire, glabrous. *Br. Fl.* 1. *p.* 4. *E. Fl. v.* i. *p.* 20. *E. Bot. t.* 1075.

Grassy pastures and moist shady places, abundant. *Fl.* May—July. ♃.—*Plant* of a pale shining green, a little succulent; smooth in wet situations; in dry ones all over hairy. *Leaves* on short foot-stalks.

Racemes solitary, erect; leafy at their base, bracteated. *Fl.* pale blue, or white with blue streaks, sometimes flesh-coloured.

* * *Racemes axillary. Root perennial.*

2. V. *Beccabunga*, Linn. *Brooklime.* Racemes opposite; leaves elliptical, flat; stem creeping. *Br. Fl.* 1. *p.* 5. *E. Fl. v.* i. *p.* 20. *E. Bot. t.* 635.

Ditches and rivulets, frequent. *Fl.* summer months. ♃.—Whole plant glabrous and very succulent. *Racemes* of many bright blue *flowers.*

3. V. *Anagallis*, Linn. *Water Speedwell.* Racemes lateral, opposite; leaves lanceolate, serrated; stem erect. *Br. Fl.* 1. *p.* 5. *E. Fl. v.* i. *p.* 21. *E. Bot. t.* 781.

Ditches, and muddy watery places. *Fl.* July, Aug. ♃.—*Stems* succulent, a foot or more high. *Leaves* varying somewhat in width. *Racemes* long, many-flowered. *Pedicels* short, never reflexed. *Flowers* bluish or inclined to purple.

4. V. *scutellata*, Linn. *Water Speedwell.* Racemes lateral, alternate; fruit-stalks reflexed; leaves linear, slightly indented. *Br. Fl.* 1. *p.* 5. *E. Fl. v.* i. *p.* 21. *E. Bot. t.* 782.

In watery spongy bogs. *Fl.* July, Aug. ♃.—*Racemes* nearly opposite. *Capsule* of two, flattened, orbicular, membranous lobes. *Flowers* flesh-coloured, with darker bluish leaves.

5. V. *officinalis*, Linn. *Common Speedwell.* Racemes lateral; partial stalks shorter than their bracteas; leaves elliptical, serrated, roughish; stem procumbent; stigma capitate. *Br. Fl.* 1. *p.* 5. *E. Fl. v.* i. *p.* 22. *E. Bot. t.* 765.

β. nearly glabrous. *V. Alionii. D. Don. MSS. Hook. Scot. v.* 1. *p.* 7.

On dry sandy banks, barren heaths, woods, and mountainous pastures, common. *β.* On Sallagh-brays, County of Antrim; *Mr. Templeton. Fl.* July. ♃.—A very variable plant in size. *Leaves* astringent and bitter, hence sometimes used medicinally as tea.

6. V. *Chamædrys*, Linn. *Germander Speedwell.* Racemes lateral; leaves ovate, sessile, rugged, deeply serrated; stem diffuse, marked with two longitudinal hairy lines; calyx 4-cleft, lanceolate. *Br. Fl.* 1. *p.* 6. *E. Fl. v.* i. *p.* 23. *E. Bot. t.* 623.

Moist woods and hedge banks, frequent. *Fl.* May, June. ♃.—*Stem* procumbent. *Flowers* large, numerous, very bright blue, expanding in fine weather only, and of short duration. Sometimes mistaken for the German. "Forget-me-not."

7. V. *montana*, Linn. *Mountain Speedwell.* Racemes lateral, lax, of few flowers; leaves ovate, stalked, serrated; stem diffuse, hairy all round. *Br. Fl.* 1. *p.* 6. *E. Fl. v.* i. *p.* 23. *E. Bot. t.* 776.

Moist woods, not unfrequent. Woodlands and other places in the

County of Dublin, abundant. *Fl.* May—June. ♃.—*Stems* about a foot or more long, weak, trailing. *Leaves* large, on stalks about equal to them in length. *Capsules* large, quite flat, veiny, their edges denticulate and slightly ciliated.

* * * *Flowers axillary, solitary. Root annual.*

8. V. *agrestis*, Linn. *Green procumbent field Speedwell.* Leaves all petiolate, cordato-ovate, inciso-serrate, as long as the flower-stalks; segments of the calyx oblong, obtuse; stem procumbent; capsule of two turgid keeled lobes; cells about 6-seeded. *Br. Fl.* 1. *p.* 7. *E. Fl. v.* i. *p.* 24. *Borr. in E. Bot. Suppl. t.* 2603.

Fields and waste places, abundant. *Fl.* April—Sept. ⊙.—Prostrate. *Stems* three to four inches long, slightly hairy. *Peduncles* longer than the leaves. *Fruit* of two round tumid lobes, much smaller than the calyx. *Seeds* large, cupped.—My specimens from Mr. Moore, collected in Derry, agree with Reichenbach's fig. in having the calyx segments three-nerved and having the edges tipped with glands.

9. V. *polita*, Fries. *Grey procumbent field Speedwell.* Leaves all petiolate, cordato-ovate, inciso-serrate, shorter than the flower-stalks; segments of the calyx ovate, acute; stem procumbent; capsule of two turgid lobes; cells many-seeded. *Br. Fl.* 1. *p.* 7.—*V. agrestis, E. Bot. t.* 783.

Cultivated fields and waste places, often with the preceding. *Fl.* throughout the summer. ⊙.—Mr. Borrer has well illustrated this and the foregoing, *V. agrestis* in the Supplement to *Engl. Bot. t.* 2603.—*Herbage* of a greyish colour, not pale green as in the last, and usually less hairy. *Leaves* ovate, very slightly cordate at the base and less wrinkled, less deeply and more regularly serrated, or crenate. *Corolla* pale blue, or rose-colour in the upper half, or often entirely white. Generally smaller.

10. V. *arvensis*, Linn. *Wall Speedwell.* Flowers solitary, nearly sessile; leaves ovate, deeply serrated; the floral ones lanceolate, entire; stem erect; seeds flat. *Br. Fl.* 1. *p.* 7. *E. Fl. v.* i. *p.* 24. *E. Bot. t.* 724.

On walls and dry gravelly ground, abundant. *Fl.* in the spring months, and early in summer. ⊙.—Erect, pale green. *Flowers* pale blue. *Capsules* compressed.

11. V. *hederifolia*, Linn. *Ivy-leaved Speedwell.* Flowers solitary; leaves heart-shaped, flat, 5-lobed; segments of the calyx heart-shaped, acute; seeds cupped, wrinkled. *Br. Fl.* 1. *p.* 7. *E. Fl. v.* i. *p.* 25. *E. Bot. t.* 784.

Fields, hedge-banks, and cultivated grounds, common. *Fl.* April—June. ⊙.—Procumbent. *Flowers* blue. *Capsules* tumid.

12. *V. triphyllos*, Linn. *Blunt-fingered Speedwell.* Flowers solitary; upper leaves in deep, finger-like, obtuse segments; flowerstalks longer than the calyx; seeds flat. *Br. Fl.* 1. *p.* 7. *E. Fl. v.* i. *p.* 25. *E. Bot. t.* 26.

Strand near Sandymount, rare; *Doctor Scott.* Not found of late. *Fl.* April. ⊙.—Three to four inches high, with spreading branches. *Flowers* a very deep blue, the lowermost often on very long pedicels.

2. RHINANTHUS. *Linn.* Yellow Rattle.

Calyx inflated. Upper *lip* of the *corolla* compressed laterally, *lower* one plane, 3-lobed. *Capsules* of two cells, obtuse, compressed, with many imbricated, flat and marginal seeds. —Name; *ριν*, a *nose*, and *ανθος*, a *flower:* in allusion to the beaked upper lip of the corolla, which is very remarkable in the *R. Elephas.* *Didynamia. Angiospermia.*

1. R. *Crista-Galli*, Linn. *Common Yellow Rattle.* Stem slightly branched; leaves lanceolate, serrated; calyx smooth; style concealed by the upper lip; seeds with a dilated membranous border. *Br. Fl.* 1. *p.* 283. *E. Fl. v.* iii. *p.* 120. *E. Bot. t.* 657.

Meadows and pastures, abundant. *Fl.* June. ⊙.—One or two feet high, glabrous, often much branched, and more or less spotted with purple. *Leaves* veiny. *Flowers* axillary in the upper leaves or *bracteas*, and hence loosely spiked. When the fruit is ripe, the seeds rattle in the husky capsules. In England Mr. Curtis observes, the hay-making begins when this plant is in full flower. In natural meadows in many parts of Ireland, the seed is ripe before the hay is cut.

3. PEDICULARIS. *Linn.* Louse-wort.

Calyx inflated, 5-cleft, or unequally 2—3 lobed, jagged, somewhat leafy. Upper *lip* of the *corolla* laterally compressed, arched, lower one plane, 3-lobed. *Capsules* oblique, compressed, 2-celled. *Seeds* angular.—Name, from its supposed property of producing the lousy disease in sheep that feed upon it, but which rather arises from the wet pastures where such plants grow. *Didynamia. Angiospermia.*

1. P. *palustris*, Linn. *Marsh Louse-wort, or tall Red Rattle.* Stem solitary, branched; calyx ovate, hairy, ribbed, in two unequally notched lobes. *Br. Fl.* 1. *p.* 286. *E. Fl. v.* iii. *p.* 129. *E. Bot. t.* 129.

In marshes and boggy meadows. *Fl.* June, July. ♃.—*Stem* one foot high, often very purple, bearing many lateral branches. *Leaves* pinnate; *pinnæ* ovate, almost pinnatifid. *Flowers* large, handsome, deep rose-coloured.

2. P. *sylvatica*, Linn. *Pasture Louse-wort, or Dwarf Red Rattle.* Stem branched from the base and spreading; calyx oblong, angular, glabrous, in five unequal, crenate, and almost leafy segments. *Br. Fl.* 1. *p.* 286. *E. Fl. v.* iii. *p.* 129. *E. Bot. t.* 399.

Moist pastures and heaths, common. *Fl.* July. ♃.—*Stems* three to five inches long. Lower *leaves* pinnatifid, the rest pinnated with deeply serrated *pinnæ*. *Flowers* large, handsome, pale, rose-coloured.

4. BARTSIA. *Linn.* Bartsia.

Calyx tubular, mostly coloured. *Corolla* ringent with a contracted orifice; upper lip arched, entire; lower one in three, equal, reflexed lobes. *Anthers* mostly hairy. *Capsules* ovate, compressed, with two cells and many angular seeds.—Name in honour of *John Bartsch*, a Prussian Botanist, and friend of Linnæus, who died at Surinam. *Didynamia. Angiospermia.*

1. B. *viscosa*, Linn. *Yellow viscid Bartsia.* Leaves serrated; upper ones alternate; flowers lateral and distant; stem round; root fibrous. *Br. Fl.* 1. *p.* 282. *E. Fl. v.* iii. *p.* 118. *E. Bot. t.* 1045.

Moist fields in the southern parts of the County of Cork, and County of Kerry, not unfrequent. At Ballylicky near Bantry and near Dingle, &c. abundant. *Fl.* Aug. ⊙.—*Plant* downy. *Stem* solitary, sometimes a foot high, nearly simple. *Leaves* sessile, ovato-lanceolate, veiny. *Flowers* from the bosom of the leaves, yellow, handsome.

2. B. *Odontites*, Huds. *Red Bartsia.* Leaves lanceolate, serrated, the upper ones alternate; flowers forming unilateral racemes; stem square, branched; root fibrous. *Br. Fl.* 1. *p.* 283. *E. Fl. v.* iii. *p.* 119. *E. Bot. t.* 1415.

Corn-fields and waste places, frequent. *Fl.* July, Aug. ⊙.—*Racemes* many, long, erect. *Flowers* reddish-purple.

5. EUPHRASIA. *Linn.* Eye-bright.

Calyx tubular. Upper *lip* of the *corolla* divided; lower one of three unequal lobes. Cells of the *anthers* spurred at the base. *Capsules* ovato-oblong, 2-celled. *Seeds* striated.—Name from *Euphrosyne*, expressive of joy and pleasure, in allusion to its properties. *Didynamia. Angiospermia.*

1. E. *officinalis*, Linn. *Common Eye-bright.* Leaves ovate, furrowed, sharply toothed. *Br. Fl.* 1. *p.* 283. *E. Fl. v.* iii. *p.* 122. *E. Bot. t.* 1416.

Pastures and sides of mountains, abundant. *Fl.* July. ⊙.—Varying in height according to situation. *Flowers* axillary, but crowded at the extremity of the branches, white or reddish, streaked with purple. The plant is still much used in rustic practice as a remedy for diseases of the eye.

6. LINARIA. *Juss.* Toadflax.

Calyx 5-parted. *Corolla* personate, spurred at the base, the mouth closed by a projecting palate. *Capsule* ventricose, 2-celled, opening by valves or teeth.—Name from *Linum*, *flax*, which the leaves of some species resemble.

Didynamia. Angiospermia.

1. L. *Cymbalaria*, Mill. *Ivy-leaved Toadflax.* Leaves heart-shaped, 5-lobed, alternate, smooth; stems procumbent. *Br. Fl.* 1. *p.* 287.—*Antirrhinum Cymbalaria, Linn. E. Fl. v.* iii. *p.* 131. *E. Bot. t.* 502.

On old walls, &c. The outcast of gardens. *Fl.* all the summer. ♃.—*Stems* very long, filiform. *Leaves* petiolated, often purple beneath. *Flowers* small, pale blue or purplish.

2. L. *Elatine*, Desf. *Sharp-pointed Fluellen or Toadflax.* Leaves chiefly halberd-shaped, alternate, lowermost ovate, opposite; stems procumbent, hairy. *Br. Fl.* 1. *p.* 287.—*Antirrhinum Elatine, Linn. E. Fl. v.* iii. *p.* 132. *E. Bot. t.* 692.

Corn-fields in a dry gravelly soil, rare. Fields by the side of the Bandon road; *Mr. J. Drummond.* Corn-fields near Rathkeale, County of Limerick; *Henry Hardy, Esq. Fl.* July—Sept. ⊙.—*Plant* clothed with fine hairs. *Stem* spreading, leafy, rather slender. *Flowers* on axillary stalks, variegated with yellow and pale violet. *Segments* of the *calyx* lanceolate.

3. L. *repens*, H. Kew. *Creeping pale-blue Toadflax.* Leaves linear, glaucous, scattered, partly whorled; stem panicled; calyx smooth, the length of the spur. *Br. Fl.* 1. *p.* 287.—*Antirrhinum repens, Linn. E. Fl. v.* iii. *p.* 133. *E. Bot. t.* 1253.

On the refuse of an old slate quarry, a mile below Bandon, and by the old castle near it by the river side, 1805. Road side, half way between Bandon and Dunmanway; *Mr. J. Drummond.* County of Antrim; *Mr. Templeton. Fl.* July—Sept. ♃.—*Stems* erect, one foot and a half high, slender, branched. *Leaves* somewhat whorled below. *Flowers* in panicled racemes, bluish, palate yellow.

4. L. *vulgaris*, Mœnch. *Yellow Toadflax.* Leaves linear-lanceolate, crowded; stem erect; spikes terminal; flowers imbricated; calyx smooth, shorter than the spur. *Br. Fl.* 1. *p.* 287.—*Antirrhinum Linaria, Linn. E. Fl. v.* iii. *p.* 134. *E. Bot. t.* 658.

In hedges and fields, in the southern, northern, and midland counties, as well as near Dublin, not unfrequent. *Fl.* Aug. ♃.—One to two feet high, glaucous. *Flowers* large, yellow. The remarkable variety called ("*Peloria*" figured in *E. Bot. t.* 260), with five *spurs* and five, usually imperfect, *stamens*, has not been observed to grow in Ireland.

5. L. *minor*, Desf. *Least Toadflax.* Leaves lanceolate, obtuse, downy, mostly alternate; stem much branched, spreading; calyx longer than the spur. *Br. Fl.* 1. *p.* 288.—*Antirrhinum minus, Linn. E. Fl. v.* iii. *p.* 135. *E. Bot. t.* 2014.

Sandy fields. Said to have been found near Sunday's-well, County of Cork, by Doctor Woods, but I have not seen Irish specimens. *Fl.*

June, July. ⊙.—Six to eight inches high, with small purplish-yellow flowers, which are stalked, solitary and axillary.

7. ANTIRRHINUM. *Linn.* Snapdragon.

Calyx 5-parted. *Corolla* personate, gibbous at the base, (no distinct spur), its mouth closed by a projecting palate. *Capsules* 2-celled, oblique, opening by three pores at the extremity.—Name, *αντι*, *resembling*, *ριν*, a *nose*, *muffler*, or *mask*, from the appearance of the flowers.

Didynamia. Angiospermia.

1. A. *majus*, Linn. *Great Snapdragon.* Flowers in a dense cluster; leaves lanceolate; segments of the calyx ovate, obtuse. *Br. Fl.* 1. *p.* 286. *E. Fl. v.* iii. *p.* 135. *E. Bot. t.* 129.

Old walls, frequently originating from neighbouring gardens. *Fl.* July, Aug. ♃.—*Flowers* very large, mostly purplish red, often white and sometimes deep red.

2. A. *Orontium*, Linn. *Lesser Snapdragon.* Corolla scarcely tumid at the base; flowers loosely spiked; calyx finger-shaped, longer than the corolla. *Br. Fl.* 1. *p.* 286. *E. Fl. v.* iii. *p.* 136. *E. Bot. t.* 1155.

Corn-fields in a dry soil. Fields near Monkstown, and near the Ovens, County of Cork; *Mr. J. Drummond. Fl.* July, Aug. ⊙.—*Flowers* purple, remarkable for the great length of the calyx-segments, especially after flowering.

8. DIGITALIS. *Linn.* Fox-glove.

Calyx in five deep unequal segments. *Corolla* campanulate, inflated beneath; *limb* obliquely 4—5 lobed, unequal. *Capsules* ovate, of two cells, and many seeds.—Name, *digitale*, the *finger of a glove*, which its flowers resemble. Hence *Fox-glove* in English, *doigts de la Vierge*, *gants de notre Dame*, &c. in French. *Didynamia. Agiospermia.*

1. D. *purpurea*, Linn. *Purple Fox-glove.* Segments of the calyx ovate, acute; corolla obtuse, its upper lobe scarcely cloven; leaves downy. *Br. Fl.* 1. *p.* 289. *E. Fl. v.* iii. *p.* 140. *E. Bot. t.* 1297.

Dry banks, pastures, and walls, most frequent on clay-slate. *Fl.* June, July. ♂.—A very beautiful herbaceous plant, which has been much used in medicine. Three to four feet high. *Leaves* large, veiny. *Spikes* very long, of numerous drooping, purple, (or rarely white) *flowers*, spotted within.

9. SIBTHORPIA. *Linn.* Sibthorpia.

Calyx in five, deep, spreading segments. *Corolla* 5-cleft, rotate, the two lowermost segments the narrowest; *stigma* dilated. *Capsule* nearly orbicular, compressed, 2-celled, 2-valved.—

Name, given in honour of *Dr. Humphrey Sibthorpe*, the successor of Dillenius in the botanical chair at Oxford. *Didynamia. Angiospermia.*

1. S. *europæa*, Linn. *Creeping Sibthorpia. Br. Fl.* 1. *p.* 290. *E. Fl. v.* iii. *p.* 143. *E. Bot. t.* 649.

Moist shady places. Under a wall on the north side of Conner-hill, near Dingle, 1805. *Fl.* July, Aug. ♃.—An interesting little plant, hairy, with creeping filiform *stems*, and alternate, reniform, broadly crenate *leaves*. *Flowers* axillary, solitary, on short stalks, pinkish white, very small.

10. SCROPHULARIA. *Linn.* Figwort.

Calyx 5-lobed. *Corolla* sub-globose; its limb contracted with two short *lips*, the upper with two lobes, and frequently a small *scale* or abortive stamen within it, the lower 3-lobed. *Capsules* 2-celled, 2-valved, the margins of the valves turned inwards.—Named from *Scrophula*, a disease which this plant was supposed to cure. *Didynamia. Angiospermia.*

1. S. *nodosa*, Linn. *Knotted Figwort.* Leaves heart-shaped, acute, 3-ribbed at the base; stem sharp-edged; root tuberous. *Br. Fl.* 1. *p.* 288. *E. Fl. v.* iii. *p.* 137. *E. Bot. t.* 1544.

In hedge-banks and woods, frequent. *Fl.* July. ♃.—*Root* large, thick and knotty. *Stem* two to three feet high. *Flowers* in dichotomous, axillary, and terminal *panicles*. *Corolla* greenish-purple, with a scale in the upper lip.

2. S. *aquatica*, Linn. *Water Figwort.* Leaves heart-shaped, bluntish, on decurrent footstalks; stem winged; root fibrous. *Br. Fl.* 1. *p.* 288. *E. Fl. v.* iii. *p.* 137. *E. Bot. t.* 854.

Sides of rivers and in wet ditches. *Fl.* July. ♃.—Three or four feet high. *Panicles* terminal, bracteated, with remote branches. *Flowers* dark purple at the mouth, with a scale in the upper lip. *Calyx* margined with purple.

3. S. *Scorodonia*, Linn. *Balm-leaved Figwort.* Leaves heart-shaped, doubly serrated, downy beneath; panicles leafy. *Br. Fl.* 1. *p.* 288. *E. Fl. v.* iii. *p.* 138. *E. Bot. t.* 2209.

Marshes near Tralee, as stated by Smith in his history of Kerry. *Fl.* July. ♃.—*Stem* about three feet high, branched, covered with short hairs. *Leaves* three-ribbed at the base. *Flowers* on axillary, forked peduncles, forming a long raceme. *Corolla* greenish purple.

ORD. 56. OROBANCHEÆ. *Vent.* Broom-rape Family.

Calyx divided, persistent, inferior. Corolla monopetalous, hypogynous, irregular, persistent, with an imbricated æstivation. Stamens 4, didynamous. Ovarium superior, 1-celled, seated in a fleshy disk, with 2 or 4 parietal polyspermous placentæ; style 1; stigma 2-lobed. Fruit capsular, enclosed within the withered corolla, 1-celled, 2-valved, each valve bearing 1 or 2 placentæ in the middle. Seeds indefinite, very minute; embryo minute at the base of a fleshy albumen.—*Herbaceous leafless plants, growing parasitically upon the roots of other species. Stems covered with brown or colourless scales.*

1. OROBANCHE. *Linn.* Broom-rape.

Calyx of two lateral, often combined and bifid segments, bracteated. *Corolla* ringent, 4—5-cleft. A *gland* at the base of the germen beneath. *Stigma* capitate. *Capsule* 2-valved, bearing numerous minute *seeds*, on parietal longitudinal *receptacles*.—Name, from *οροβος*, a *leguminose*, or *pea-like plant*, and *αγχειν*, to *strangle*, the roots being often attached to plants of that description are supposed to injure them.

Didynamia. Angiospermia.

1. O. *major*, Linn. *Greater Broom-rape.* Stem simple; corolla inflated; upper lip slightly notched; lower with acute, nearly equal segments; stamens quite smooth below; style downy. *Br. Fl.* 1. *p.* 291. *E. Fl. v.* iii. *p.* 146. *E. Bot. t.* 421.

On the roots of broom and furze in bushy places. Plentiful near the lake at Luggy-law; at the Devil's-Glen and Seven Churches, County of Wicklow, &c. *Fl.* June, July. ♃.—One to one foot and a half high, leafless. Whole plant dingy purplish-brown, pubescent. *Stem* swelling at the base and very scaly: *scales* more distant upwards and becoming bracteas among the *flowers;* one at the base of each. *Flowers* in a long *spike.* *Calyx* of two lateral lanceolate *leaves.* *Corolla* large.

2. O. *minor*, Sm. *Lesser Broom-rape.* Stem simple; corolla nearly cylindrical; lower lip with curled segments, the middle one largest and lobed; stamens fringed; style smooth. *Br. Fl.* 1. *p.* 292. *E. Fl. v.* iii. *p.* 148. *E. Bot. t.* 442.

Near the roots of ivy. South side of the hill of Howth, on steep banks near the sea; in Sir Robert Staple's woods, Queen's County; on the ruins of Mucruss Abbey, Killarney; south Isles of Arran, and plentiful in Palmerston and Leixlip woods. *Fl.* July, Aug. ♃.—From one to one and a half foot high, more slender than the last. *Corolla* not at all tumid, upper lip unequally notched.

3. O. *rubra*, Sm. *Red Broom-rape.* Stem simple; corolla somewhat tumid, upper lip cloven, lower in three nearly equal segments; stamens fringed at the base; style partially hairy; sepals lanceolate, undivided. *Br. Fl.* 1. *p.* 292. *E. Fl. v.* iii. *p.* 148. *E. Bot. t.* 1786.

On the decomposed trap-rocks at Cave-hill near Belfast; *Mr. Templeton.* On the basaltic rocks at Magilligan, County of Derry. *Fl.*

July. ♃.—*Plant* leafless, of a purplish colour. *Stem* about a foot high, densely scaly beneath. *Flowers* fragrant.

2. LATHRÆA. *Linn.* Tooth-wort.

Calyx campanulate. *Corolla* tubular, 2-lipped, the upper *lip* concave. A depressed *gland* at the base of the *germen*. *Capsule* two-valved, one-celled, having two spongy *receptacles* in the middle of each valve.—Name, λαθραιος, *hid* or *concealed*, the plant being much concealed by the earth or dead leaves. *Didynamia. Angiospermia.*

1. L. *squamaria*, Linn. *Greater Tooth-wort.* Flowering branches erect, simple ; flowers axillary, unilateral, pendulous ; lower lip in three lobes ; upper cloven. *Br. Fl.* 1. *p.* 285. *E. Fl. v.* iii. *p.* 127. *E. Bot. t.* 50.

Woods and shady places apparently parasitic on the roots of elms and other trees. Plentiful at Woodlands, County of Dublin, Balruddery, County of Wicklow and other places. *Fl.* April, May. ♃.—Branching at the very base. Whole plant succulent, with many fleshy tooth-like scales. *Bracteas* broadly ovate. *Flowers* purplish. *Style* included, sometimes exserted.

ORD. 57. MELAMPYRACEÆ. *Rich.* Cow-wheat Family.

Calyx divided, persistent, unequal, inferior. Corolla monopetalous, hypogynous, deciduous, personate. Stamens 4, didynamous; anthers with acuminate lobes. Ovarium superior, 2-celled, 2-seeded; style 1 ; stigma obtuse. Fruit capsular, 2-celled, 2-valved, covered by the calyx. Seeds in pairs, erect; embryo minute, inverted in the apex of fleshy albumen ; radicle superior.—*Herbaceous plants. Leaves opposite, without stipulæ. Flowers axillary, with coloured floral leaves.*

1. MELAMPYRUM. *Linn.* Cow-wheat.

Calyx tubular. Upper *lip* of the *corolla* laterally compressed, turned back at the margin ; lower *lip* trifid. *Capsules* oblong, 2-celled, oblique, opening on one side. *Cells* 1-seeded. *Seed* gibbous at the base.—Name ; μελας, *black*, and πυρος, *wheat*. Its seeds resemble grains of wheat, and they are said when mixed with flour to make the bread black. *Didynamia. Angiospermia.*

1. M. *pratense*, Linn. *Common Yellow Cow-wheat.* Flowers axillary, in partly distant pairs, turned to one side ; corolla closed ; lip direct ; upper floral leaves toothed at the base. *Br. Fl.* 1. *p.* 285. *E. Fl. v.* iii. *p.* 125. *E. Bot. t.* 113.

β. smaller, somewhat succulent, bracteas quite entire.

Groves and thickets, (not in meadows as the name would imply), frequent. β. on the top of Mangerton where I gathered it in 1805. It has since been observed there by Sir Thomas Gage and others. On Muckish and Croagh Patrick ; *Doctor Hooker*. *Fl.* July, Aug. ⊙.—One foot or more high, slender, with straggling, opposite branches. *Flowers* large, pale yellow.

2. M. *sylvaticum*, Linn. *Lesser-flowered Cow-wheat.* Flowers axillary in distant pairs, turned to one side; corolla gaping; lip deflexed ; leaves nearly all entire. *Br. Fl.* 1. *p.* 285. *E. Fl.* *v.* iii. *p.* 126. *E. Bot. t.* 804.

Subalpine woods, rare. Bushy places near Glenarm, County of Antrim ; *Mr. Templeton.* Errigal banks near Garvagh, County of Derry ; *Mr. D. Moore*. *Fl.* July. ⊙.—One foot high. *Branches* always entire. *Corolla* deep yellow, very small.—Mr. Moore remarks that this may be well distinguished from any state of *M. pratense* by its shorter and more obtuse sepals which spread widely from the corolla, and are generally a little reflexed, whereas in *M. pratense* the two lower ones extend horizontally along the lower lip of the corolla.

ORD. 58. VERBENACEÆ. *Juss.* Vervain Family.

Calyx tubular, persistent, inferior. Corolla hypogynous, monopetalous, tubular, deciduous, generally with an irregular limb. Stamens usually 4, didynamous, seldom equal, occasionally 2. Ovarium 2 or 4-celled ; ovules erect, solitary or twin ; style 1 ; stigma bifid or undivided. Fruit drupaceous, or baccate. Seeds erect ; albumen none, or in very small quantity ; embryo erect.—*Trees or shrubs, sometimes herbaceous plants. Leaves generally opposite, simple or compound, without stipulæ. Flowers in opposite corymbs, or spiked alternately ; sometimes in dense heads, very seldom axillary and solitary.*

1. VERBENA. *Linn.* Vervain.

Calyx tubular, with five teeth, one of them generally shorter than the rest. *Corolla* tubular, with the limb rather unequal, 5-cleft. *Stamens* included, (sometimes only two). *Seeds* two or four, enclosed in a thin evanescent pericarp.—Name ; *ferfaen* in Celtic, derived from *fer*, to drive away, and *faen*, a *stone*, from having been supposed to cure the complaint so called. *Theis.* *Didynamia. Angiospermia.*

1. V. *officinalis*, Linn. *Common Vervain.* Stamens four ; spikes slender, panicled ; leaves deeply cut ; stem mostly solitary. *Br. Fl.* 1. *p.* 290. *E. Fl. v.* iii. *p.* 71. *E. Bot. t.* 767.

Road sides and waste ground in a limestone soil. Plentiful near Cork, and Killarney, and at Kilmacannick, County of Wicklow. *Fl.*

July. ♃.—The genus *Verbena* is placed by Sir James Edward Smith, in the first order of the class Didynamia, but as *Doctor Hooker* remarks, it does not naturally rank there, being considerably different in the structure of its germen and fruit. This herb has scarcely any aromatic or other sensible quality. The root worn about the neck with a string, is an old superstitious remedy, or charm for the *King's Evil.*

ORD. 59. LABIATÆ. *Juss.* Labiate Family.

Calyx tubular or regular, and quinquefid, or 5—10-toothed or 2-lipped, the lips entire or divided. Corolla monopetalous, hypogynous, tubular, irregular. Upper lip undivided or bifid; in æstivation overlapping the inferior trifid one. Stamens 4, didynamous, two of them sometimes sterile; filaments inserted alternately with the lobes of the lower lip: anthers 2-lobed, the lobes often divaricated, sometimes 1-celled. Ovaries 4, 1-seeded, connected at the base by means of the style, situated upon a glandular disk: ovules erect: style 1, originating from the receptacle: stigma bifid, usually acute. Fruit of four achenia or small nuts enclosed in the persistent calyx, one or more not unfrequently abortive: albumen little or none. Embryo erect: cotyledons plane.—*Herbaceous plants or undershrubs. Stem 4-cornered, with opposite ramifications. Leaves opposite, divided or undivided, without stipulæ, replete with receptacles of aromatic oil. Flowers in opposite, nearly sessile cymes, resembling whorls; sometimes as if capitate.*

An extensive Natural Family, abounding in essential oils, as the Lavender, Thyme, Mint, &c. They are tonic and stomachic, and many are employed in medicine, and others as savoury herbs.

1. SALVIA. *Linn.* Sage.

Calyx 2-lipped, tubular. *Corolla* labiate, the tube dilated upwards and compressed. *Filaments* with two divaricating branches, one only bearing a perfect, single *cell* of an *anther.* —Named from *salvo,* to *save* or *heal,* in allusion to its balmy or healing qualities. *Diandria. Monogynia.*

1. S. *verbenaca,* Linn. *Wild English Clary or Sage.* Leaves serrated, sinuated, smoothish; corolla much more contracted than the calyx. *Br. Fl.* 1. *p.* 10. *E. Fl. v.* i. *p.* 35. *E. Bot. t.* 154.

Dry pastures and banks in a sandy or gravelly soil. Very common near Dublin, and many other places. *Fl.* June, July. ♃.—One to two feet high. *Flowers* small, violet-blue.

2. LYCOPUS. *Linn.* Gipsy-wort.

Calyx tubular, 5-cleft. *Corolla* tubular, 4-lobed, nearly equal;

the upper lip broader and emarginate.—Name from λυκος, a *wolf*, and πους, a *foot*, from a fancied resemblance, in the cut leaves of this plant, to a wolf's paw.—*Der Wolfsfuss*, in Germ.;—in English, *Gipsy-wort*, because the plant yields a black dye, which is employed by gipsies to render their skin darker. *Diandria. Monogynia.*

1. L. *europæus*, Linn. *Common Gipsy-wort or Water Horehound.* Leaves deeply serrated. *Br. Fl.* 1. *p.* 10. *E. Fl. v.* i. *p.* 34. *E. Bot. t.* 1105.

Ditches and river banks, frequent. *Fl.* June, July. ♃.—*Leaves* opposite, nearly sessile, ovato-lanceolate, wrinkled, very deeply sinuato-serrate, almost pinnatifid. *Flowers* small, sessile, in dense *whorls* at the base of the superior leaves, whitish with purple dots, hairy within.

3. Ajuga. *Linn.* Bugle.

Calyx 5-cleft, nearly equal. *Corolla* tubular, labiate; the upper lip very small, and with two teeth; the lower one 3-lobed, with a large intermediate obcordate lobe. *Stamens* protruded above the upper lip.—Name altered from *Abiga*, (*abigo*, to drive away) of the Latins, a medical plant allied to this. *Didynamia. Gymnospermia.*

1. A. *reptans*, Linn. *Common Bugle.* Almost smooth, with a solitary stem and creeping runners; lower lip of the corolla 4-cleft. *Br. Fl.* 1. *p.* 273. *E. Fl. v.* iii. *p.* 65. *E. Bot. t.* 489.

Moist pastures and woods, abundant. *Fl.* May, June. ♃.—*Stem* a span high, erect, leafy. *Leaves* obovate, upper ones sessile; *whorls* several. *Flowers* blue (sometimes white or flesh-coloured).

2. A. *alpina*, Linn. *Alpine Bugle.* Leaves nearly glabrous, unequally toothed, all nearly of the same size; whorls of flowers rather distant. *Br. Fl.* 1. *p.* 273. *E. Fl. v.* iii. *p.* 65. *E. Bot. t.* 477.

Mountains, rare. Summit of Benyevena, Magilligan, County of Derry; *Mr. D. Moore*, whose specimens appear more dwarf than the figure in *E. Bot.* but otherwise pretty well agree. *Fl.* July. ♃.

4. Teucrium. *Linn.* Germander.

Calyx tubular, 5-toothed, nearly equal, or 2-lipped. *Corolla* with the tube shorter than the calyx; upper *lip* bipartite, lower one patent, trifid. *Stamens* much exserted. Cells of the *Anthers* confluent, spreading.—Named from *Teucer*, Prince of Troy, who first employed this plant medicinally. *Didynamia. Gymnospermia.*

1. T. *Scorodonia*, Linn. *Wood Germander.* Leaves heart-shaped, hairy, serrated, stalked; racemes aggregate, unilateral;

stem erect. *Br. Fl.* 1. *p.* 272. *E. Fl. v.* iii. *p.* 68. *E. Bot. t.* 1543.

Woods and dry stony places, frequent. *Fl.* July, Aug. ♃.—*Stems* one to two feet high. *Leaves* much wrinkled. *Flowers* yellowish-white. The plant is extremely bitter, and has been sometimes used instead of hops.

2. T. *Scordium*, Linn. *Water Germander.* Leaves oblong, sessile, downy, with tooth-like serratures; flowers axillary, stalked, in pairs; stem procumbent. *Br. Fl.* 1. *p.* 273. *E. Fl. v.* iii. *p.* 68. *E. Bot. t.* 828.

Low wet meadows, rare. In marshy ground near the bridge at Portumna, County of Tipperary. Banks of the river near the bridge, east of Castle-Lyons; *Doctor Wade. Fl.* July, Aug. ♃.—*Flowers* rather small, pale-purple, about two, from the axils of the leaves.

3. T. *Chamædrys*, Linn. *Wall Germander.* Leaves somewhat ovate, stalked, deeply crenate or cut; flowers axillary, three together, stalked; stem roundish, hairy. *Br. Fl.* 1. *p.* 273. *E. Fl. v.* iii. *p.* 69. *E. Bot. t.* 680.

Borders of fields and ruined walls. Field near the Cork Botanic Garden; *Mr. J. Drummond. Fl.* July. ♃.—*Flowers* reddish-purple, large, handsome, mostly in terminal axils.

5. Leonurus. *Linn.* Motherwort.

Calyx with five or ten ribs, equal, with five subulate teeth, the throat naked. *Corolla* with the upper *lip* very hairy above, entire; lower one patent, trifid. *Anthers* sprinkled with shining dots.—Name, *λεων*, a *Lion*, and *ουρα*, a *tail*, from a fancied resemblance in the plant to a Lion's tail.

Didynamia. Gymnospermia.

1. L. *Cardiaca*, Linn. *Motherwort.* Upper leaves lanceolate, either 3-lobed or undivided. *Br. Fl.* 1. *p.* 275. *E. Fl. v.* iii. *p.* 104. *E. Bot. t.* 286.

Road-side between Foaty and Cork; *Mr. J. Drummond. Fl.* Aug. ♃.—*Stem* three feet high, branched. *Flowers* in crowded whorls, white with a reddish tinge; under lip of the *corolla* shaggy. *Calyx* with pungent, spreading teeth.

6. Glechoma. *Linn.* Ground-Ivy.

Calyx tubular, many-nerved, equal, 5-toothed. *Corolla* with the tube exserted; upper lip bifid, lower 3-lobed, middle lobe emarginate, plane. *Anthers*, before bursting, approaching in pairs and forming a cross.—Name, *γληκων*, given by the Greeks to a kind of *Thyme.*

Didynamia. Gymnospermia.

1. G. *hederacea*, Linn. *Ground-Ivy.* Leaves reniform, crenate. *Br. Fl.* 1. *p.* 279. *E. Fl. v.* iii. *p.* 88. *E. Bot. t.* 853.

Hedges and waste places, frequent. *Fl.* April, May. ♃.—*Plant* much creeping. *Leaves* stalked, downy. *Flowers* large, blue, in threes, axillary.

7. Mentha. *Linn.* Mint.

Calyx equal, 5-toothed, its mouth naked or rarely villous. *Corolla* nearly regular, 4-fid, its tube very short. *Stamens* distant, exserted or included. *Filaments* naked. *Anthers* with two parallel cells. *Benth.*—Name; μινθα or μινθη, an ancient Greek name. *Didynamia. Gymnospermia.*

1. M. *sylvestris*, Linn. *Horse-Mint.* Leaves ovato-oblong, very acute, unequally serrated, downy, hoary beneath; spikes almost cylindrical, scarcely interrupted; bracteas subulate; calyx very hairy. *Br. Fl.* 1. *p.* 269. *E. Fl. v.* iii. *p.* 73. *E. Bot. t.* 686.

Moist waste ground. In ditches by the way-side near Rosstrevor. Near Carrigaline, County of Cork; *Mr. J. Drummond. Fl.* Aug. Sept. ♃.—*Plant* about three feet high, branched, of a hoary colour. *Leaves* generally sessile, spreading, variously shaped, approaching to ovate. *Spikes* somewhat panicled. *Flowers* whorled, pale-purple.

2. M. *rotundifolia*, Linn. *Round-leaved Mint.* Leaves elliptical, obtuse, sharply serrated, wrinkled, downy, shaggy beneath; spikes interrupted; bracteas lanceolate; calyx somewhat hairy. *Br. Fl.* 1. *p.* 269. *E. Fl. v.* iii. *p.* 74. *E. Bot. t.* 446.

Waste places, scarcely wild. On a dry bank at Carlisle Fort near Cove. *Fl.* Aug. Sept. ♃.—Whole plant viscid, and has a peculiarly acrid smell which many people think highly grateful, hence it is often cultivated in gardens.

3. M. *viridis*, Linn. *Spear-Mint.* Leaves lanceolate, acute, glabrous, serrated, sessile; spikes interrupted; bracteas setaceous, somewhat hairy, as well as the calyx; pedicels glabrous. *Br. Fl.* 1. *p.* 269. *E. Fl. v.* iii. *p.* 75. *E. Bot. t.* 2424.

Marshy places. Said to have been found near Belfast, but I have not seen wild specimens. *Fl.* Aug. ♃.—Cultivated for culinary purposes, and frequently forced in spring for an ingredient in Lamb-sauce.

4. M. *piperita*, Sm. *Pepper-Mint.* Leaves ovato-lanceolate, strongly serrated, acute, slightly hairy, stalked; spikes interrupted; bracteas lanceolate; calyx glandular, quite glabrous at the base. *Br. Fl.* 1. *p.* 296. *E. Fl. v.* iii. *p.* 76. *E. Bot. t.* 687.

Marshy places. At Farnham near the upper end of the lake. By the side of a mountain stream called the Curly-Burn, near Newtownlimavady; *Mr. D. Moore.* Banks of the Lee, near Carrigrohan Castle; *Mr. J. Drummond. Fl.* Aug. Sept. ♃.—Much cultivated on account of its essential oil, which resides in minute glands conspicuous on the *leaves*, and especially on the *calyx*.

5. M. *acutifolia*, Smith. *Fragrant sharp-leaved-Mint.* Leaves ovato-lanceolate, tapering at each end; flowers whorled; calyx hairy all over; hairs of the flower-stalks spreading. *Br. Fl.* 1. *p.* 270. *E. Fl. v.* iii. *p.* 81. *E. Bot. t.* 2415.

Banks of Lough Erne; Doctor Scott. *Fl.* Sept. ♃.—"Very closely related to the following species," (*Sm.*) and probably only a variety of it.

6. M. *hirsuta*, Linn. *Hairy Bog-Mint.* Leaves ovate, serrated, pubescent, stalked; flowers capitate or whorled; calyx hairy; pedicels with reflexed hairs. *Br. Fl.* 1. *p.* 270. *E. Fl. v.* iii. *p.* 78. *E. Bot. t.* 447.—*Mentha sativa, Linn. E. Bot. t.* 448.

Banks of rivers, lakes, and marshes, frequent. *Fl.* Aug. Sept. ♃.—Very variable.—Sometimes the flowers are capitate, sometimes whorled, and sometimes the whorls are placed so close on the extremity of the branches as to form a *spike*. *Anthers* varying in length.—M. sativa of *Engl. Bot.* now considered to be only a variety of this, is much more slender and smaller in all its parts than any of the other numerous varieties, with the flowers in six or eight distant whorls. It grows abundantly on the gravelly margin of the lake at Farnham; near to which I found another remarkable variety with ovate acuminate sharply serrated leaves resembling those of our *M. piperita*, and is probably the *M. piperita* of *Linn. the M. hirsuta* γ. of *Smith.*

7. M. *rubra*, Sm. *Tall red-Mint.* Flowers whorled; leaves ovate; stem upright, zigzag; flower-stalks and lower part of the calyx very smooth, teeth hairy. *Br. Fl.* 1. *p.* 270. *E. Fl. v.* iii. *p.* 82. *E. Bot. t.* 1413.

Wet places, in hedges and banks of rivers. Near Carrigroghan Castle, County of Cork; *Mr. J. Drummond.* Between the Chapel of Kilmacannick and the Glen of the Downs; *Major Percy Pratt.* Abundant in the County of Derry; *Mr. D. Moore. Fl.* Sept. ♃.—Four to five feet high. *Flowers* purplish, with linear, somewhat hispid *bracteas* at the base.

8. M. *arvensis*, Linn. *Corn-Mint.* Flowers whorled; leaves ovate; stem much branched, diffuse; calyx bell-shaped, covered all over with horizontal hairs. *Br. Fl.* 1. *p.* 271. *E. Fl. v.* iii. *p.* 85. *E. Bot. t.* 2199.

Corn-fields in a moist gravelly soil, not unfrequent. *Fl.* Aug. Sept. ♃.—The short and campanulate *calyx* well distinguishes this species. *Peduncles* glabrous or hairy. "The smell has been compared to that of decayed cheese." *Hooker.*

9. M. *agrestis*, Sole. *Rugged Field-Mint.* Flowers whorled; leaves somewhat heart-shaped, strongly serrated, rugose; stem erect; calyx bell-shaped, covered all over with horizontal hairs. *Br. Fl.* 1. *p.* 271. *E. Fl. v.* iii. *p.* 87. *E. Bot. t.* 2120.

Corn-fields and neglected gardens. Found occasionally near Dublin. County of Derry; *Mr. D. Moore. Fl.* Aug., Sept. ♃.—Nearly allied to the last and perhaps only a variety of it. It may however be readily distinguished from *M. arvensis* by its stouter, more erect *stems*, and somewhat rounded heart-shaped leaves, which are deeply serrated.

10. M. *Pulegium*. Linn. *Penny-royal.* Flowers whorled; leaves ovate; stem prostrate; flowerstalks and calyx all over downy, teeth of the latter fringed. *Br. Fl.* 1. *p.* 271. *E. Fl. v.* iii. *p.* 87. *E. Bot. t.* 1026.

Wet commons. Ballycotton near Cork; *Mr. J. Drummond.* Very plentiful at Calnafersy and other places near Killarney. In a small island called the Creagh, in Lough-beg, County of Derry; *Mr. D. Moore. Fl.* Aug. ♃.—The smallest of the genus, readily known by its prostrate stems, and small frequently recurved *leaves*, both of which are thickly covered with short hairs. Smell powerful. Much employed medicinally.

8. BALLOTA. *Linn.* Black Horehound.

Calyx somewhat salver-shaped, equal, with ten ribs and five broad, mucronated teeth, naked within. *Corolla* with the upper lip erect, concave; lower one trifid, middle lobe the largest, emarginate. *Cells* of the anthers spreading.—Name, βαλλωτη, from βαλλω, to *reject*, on account of its disagreeable smell. *Didynamia. Gymnospermia.*

1. B. *nigra*, Linn. *Black Horehound.* Leaves ovate, crenato-serrate; teeth of the calyx shortly acuminate, patent, longer than the tube of the corolla. *Br. Fl.* 1. *p.* 274. *E. Fl. v.* iii. *p.* 101. *E. Bot. t.* 46.

Waste places near towns and villages, frequent. *Fl.* July, Aug. ♃.—About two feet high. *Flowers* in whorls, purple. Whole plant fœtid.

9. MARRUBIUM. *Linn.* White Horehound.

Calyx with ten ribs and five or ten spreading teeth, the throat hairy. *Corolla* with the tube exserted, upper lip straight, linear, cloven; lower one 3-lobed, middle lobe the largest, emarginate.—Name of doubtful origin; some say from a town so called in Italy. *Didynamia. Gymnospermia.*

1. M. *vulgare*, Linn. *White Horehound.* Stem erect; leaves roundish, ovate, toothed, wrinkled; calyx with ten setaceous hooked teeth. *Br. Fl.* 1. *p.* 279, *E. Fl. v.* iii. *p.* 103. *E. Bot. t.* 410.

Waste places and way-sides. Strand near Carrigaline, County of Cork; *Mr. J. Drummond.* Old Churchyard at Howth, and various places in the County of Wicklow between Dunganstown and the sea. *Fl.* Aug. ♃.—One to a foot and a half high, bushy, very hoary with a white, thick pubescence or woolliness. *Flowers* small, almost white, in crowded whorls. Smell aromatic; flavour bitter. The plant is much sought after for coughs and asthma.

10. STACHYS. *Linn.* Woundwort.

Calyx angular, 5-cleft, or 5-toothed, acuminate. *Corolla* with a short tube; the upper lip vaulted; the lower 3-lobed, with the sides reflexed. *Stamens*, after the *anthers* are burst, bent back on each side. *Nuts* obsoletely 3-cornered, ovate or roundish.—Name, σταχυς, a *spike*, from the nature of the inflorescence. *Didynamia. Gymnospermia.*

1. S. *sylvatica*, Linn. *Hedge Woundwort.* Whorls of six flowers; leaves cordate, stalked; stem solid. *Br. Fl.* 1. *p.* 277. *E. Fl. v.* iii. *p.* 98. *E. Bot. t.* 416.

Woods and shady places, frequent. *Fl.* July, Aug. ♃.—*Plant* fœtid, covered with coarse hairs; *stem* two to three feet high, erect. *Leaves* pointed, ovato-cordate. *Flowers* red.

2. S. *ambigua*, Sm. *Ambiguous Woundwort.* Whorls of six flowers; leaves oblongo-cordate, acute, stalked. *Br. Fl.* 1. *p.* 277. *E. Fl. v.* iii. *p.* 99. *E. Bot. t.* 2089.

Fields and waste places, not unfrequent in the neighbourhood of Dublin. *Fl.* Aug. Sept. ♃.—*Plant* covered with rather silky hairs, a little fœtid. *Leaves* acute, oblong. *Flowers* crimson.

3. S. *palustris*, Linn. *Marsh Woundwort.* Whorls of six or more flowers; leaves linear-lanceolate, mostly sessile, semi-amplexicaul. *Br. Fl.* 1. *p.* 278. *E. Fl. v.* iii. *p.* 99. *E. Bot. t.* 1075.

River-banks and watery or moist places, frequent. *Fl.* Aug. ♃.—*Plant* covered with spiny hairs, fœtid. *Leaves* long and narrow, serrated. *Flowers* pale purple.

4. S. *arvensis*, Linn. *Corn Woundwort.* Whorls of six flowers; stem weak; leaves cordate, obtuse, slightly hairy. *Br. Fl.* 1. *p.* 278. *E. Fl. v.* iii. *p.* 100. *E. Bot. t.* 1154.

Dry corn-fields, occasionally, in many parts of the country. *Fl.* July, Aug. ⊙.—Readily distinguished by its small size, weak *stems*, small and obtuse, mostly stalked *leaves*, and the pale purple *flowers*, which scarcely exceed the calyx in length.

11. BETONICA. *Linn.* Betony.

Calyx ovate, 10-ribbed, teeth equal, awned. *Corolla* with the tube exserted, cylindrical; upper *lip* ascending; lower one patent, trifid, its middle lobe entire, or nearly so.—Name, altered from *Bentonic*, in Celtic: *Ben* meaning *head*, and *ton*, *good*. Its properties are cephalic.
Didynamia. Gymnospermia.

1. B. *officinalis*, Linn. *Wood Betony.* Spike interrupted, short; leaves cordato-oblong, crenate; middle rib of the corolla somewhat notched. *Br. Fl.* 1. *p.* 277. *E. Fl. v.* iii. *p.* 97. *E. Bot. t.* 1142.

Woods and dry bushy places. Mucruss and Ross woods, and in several islands in the lower lake of Killarney, in a limestone soil. Shane's Castle woods; *Mr. Templeton. Fl.* July, Aug. ♃.—*Stem* 1—2 feet high, with few *leaves*, the lowermost ones on long *footstalks ;* upper ones oblong, sessile.

12. GALEOBDOLON. *Huds.* Weasel-snout.

Calyx campanulate, 5-ribbed, nearly equal, 5-toothed. Upper *lip* of the *corolla* incurved, arched, entire; lower one smaller, in three nearly equal, acute lobes.—Name, γαλεη, a *weasel,* and *βδολος*, a fetid scent, and formerly considered synonymous with *Galeopsis,* from which genus it is now removed. *Didynamia. Gymnospermia.*

1. G. *luteum,* Huds. *Yellow Weasel-snout or Archangel. Br. Fl.* 1. *p.* 275. *E. Fl. v.* iii. *p.* 96. *E. Bot. t.* 787.

Woods and shady places. Woodlands and many other places in the county of Dublin; Dargle-woods, &c. county of Wicklow. Near Comber and other places in the northern counties; *Mr. Templeton. Fl.* May, June. ♃. One foot or more high. *Leaves* ovato-acuminate, deeply serrated. *Flowers* whorled, yellow; lower lip orange and spotted,

13. LAMIUM. *Linn.* Dead-nettle.

Calyx tubular, dilated upwards, 5-toothed, nearly equal. *Corolla* with the throat inflated; upper *lip* erect, entire, arched; lower one patent, 2-lobed, with one or two teeth on each side at the base.—Name from λαιμος, the *throat,* on account of the shape of the flower. *Didynamia. Gymnospermia.*

1. L. *album,* Linn. *White Dead-nettle.* Leaves cordate, acuminate, deeply serrated, stalked, whorls of about twenty (white) flowers. *Br. Fl.* 1. *p.* 276. *E. Fl. v.* iii. *p.* 90. *E. Bot. t.* 768.

Borders of fields and waste places, abundant. *Fl.* June, July. ♃.—*Flowers* large, white, rarely tinged with blush.

2. L. *purpureum,* Linn. *Red Dead-nettle.* Leaves cordate, obtuse, crenato-serrate, stalked, the uppermost crowded together; corolla with the tube bearded within. *Br. Fl.* 1. *p.* 276. *E. Fl. v.* iii. *p.* 91. *E. Bot. t.* 1933.

Borders of fields and cultivated grounds, abundant. *Fl.* May, June, ♃. *Leaves,* especially the upper ones, with a silky hairiness, and a purple tinge on the floral ones.

3. L. *incisum,* Willd. *Cut-leaved Dead-nettle.* Leaves broadly cordate, deeply inciso-crenate, stalked, the uppermost crowded; "corolla with the tube naked within." *Br. Fl.* 1. *p.* 276. *E. Fl. v.* iii. *p.* 91. *E. Bot. t.* 1953.

Cultivated and waste ground. *Fl.* May, June, ♃.—Nearly allied to the last.

4. L. *amplexicaule*, Linn. *Henbit-nettle.* Leaves broadly cordate, very obtuse, deeply inciso-crenate, stalked, the floral ones sessile embracing the stem. *Br. Fl.* 1. *p.* 277. *E. Fl. v.* iii. *p.* 92. *E. Bot. t.* 770.

Waste places, sandy fields and gardens. *Fl.* March—June. ♃.—*Corolla* of a deep rose colour, with a very slender tube.

14. NEPETA. *Linn.* Cat-mint.

Calyx tubular, many- (15-) ribbed, its mouth a little oblique, 5-toothed. *Corolla* with the tube exserted; upper *lip* emarginate; lower trifid, the lateral lobes reflexed, the middle one broad, concave, notched.—Name, some say from *Nepi*, a town in Italy; others from *Nepa*, a *scorpion*, whose bite the plant was considered to cure.

Didynamia. Gymnospermia.

1. N. *Cataria*, Linn. *Cat-mint.* Flowers in spiked subpedunculated whorls; leaves stalked, cordate, dentato-serrated. *Br. Fl.* 1. *p.* 278. *E. Fl. v.* iii. *p.* 70. *E. Bot. t.* 137.

Gravelly banks and waste places. Gravelly bank by the river Dodder above Rathfarnham-bridge; *Doctor Allman.* Banks of the Shannon opposite Limerick and other places. *Fl.* July, Aug. ♃.—*Stems* 2—3 feet high, downy, as well as the *leaves*, and whitish. *Flowers* white, tinged and spotted with rose colour. *Anthers* reddish.

15. GALEOPSIS. *Linn.* Hemp-nettle.

Calyx campanulate, equal, 5-toothed, teeth mucronate. *Corolla* with the tube exserted, the throat inflated; upper *lip* arched; lower one with three unequal lobes, having two teeth on its upper side.—Name, γαλεη, a *weasel*, and οψις, *aspect* or *appearance*; from the resemblance in the lips of the flower to the snout of an animal.

Didynamia. Gymnospermia.

1. G. *Ladanum*, Linn. *Red Hemp-nettle.* Stem not swollen below the joints; leaves lanceolate, subserrate, hairy; upper lip of the corolla slightly crenate. *Br. Fl.* 1. *p.* 275. *E. Fl. v.* iii. *p.* 93. *E. Bot. t.* 884.

Dry gravelly banks and corn-fields. Side of Knockmaroon hill, where it was first observed by *Mr. Templeton.* Corn-field on the hill of Howth; *Doctor Aquilla Smith.* Gravelly banks near Cardiff's-bridge, abundant, 1835. *Fl.* Aug.—Oct. ⊙.—*Stem* 10 or 12 inches high, with opposite branches. *Leaves* rather small, petiolate, hairy. *Flowers* purplish rose-colour.

2. G. *Tetrahit*, Linn. *Common Hemp-nettle.* Stem hispid, swollen below the joints; leaves ovate, hispid, serrated; corolla with the upper lip erect, ovate, entire. *Br. Fl.* 1. *p.* 275. *E. Fl. v.* iii. *p.* 94. *E. Bot. t.* 207.

Corn-fields and cultivated grounds, frequent. *Fl.* Aug. ⊙.—One foot to two feet high. *Flowers* purplish, or often white.

3. G. *versicolor*, Curt. *Large-flowered Hemp-nettle.* Stem hispid, swollen below the joints; leaves ovate, hispid, serrated; corolla with the upper lip horizontal, inflated. *Br. Fl.* 1. *p.* 276. *E. Fl. v.* iii. *p.* 95. *E. Bot. t.* 667.

Corn-fields, &c. Potato fields near Sligo. County of Antrim, in various places; *Mr Templeton.* County of Derry, frequent; *Mr. D. Moore. Fl.* July, Aug. ⊙.—Very different from the last, with paler, rank foliage. *Flowers* large, showy, yellow, with a large purple spot on the lower lip.

16. SCUTELLARIA. *Linn.* Skull-çap.

Calyx broadly ovate, having a conspicuous, concave tooth or scale on the upper side; its two nearly equal, entire *lips* closed after flowering. *Corolla* with the tube much exserted, upper *lip* straight, arched, lower ones trifid.—Name, *scutella,* a little *dish* or *cup,* which the calyx somewhat resembles with its appendage or ear. *Didynamia. Gymnospermia.*

1. S. *galericulata,* Linn. *Common Skull-cap.* Leaves lanceolate, cordate at the base, crenate; flowers axillary in pairs. *Br. Fl.* 1. *p.* 282. *E. Fl. v.* iii. *p.* 113. *E. Bot. t.* 523.

Banks of rivers and lakes, especially in stony places. By the lake of Killarney, and shore of Lough Neagh, at Shane's Castle. Borders of Lough Sheelan, near Arley Cottage, Cavan; *Rev. Mr. Halpin.* Ballypheane Bog, near Cork, rare; *Mr. J. Drummond. Fl.* July, Aug. ♃.—Eight or ten inches to a foot high. *Flowers* rather large, blue, downy.

2. S. *minor,* Linn. *Lesser Skull-cap.* Leaves oblongo-ovate, on very short stalks, entire, cordate at the base; flowers axillary, in pairs. *Br. Fl.* 1. *p.* 282. *E. Fl. v.* iii. *p.* 113. *E. Bot. t.* 524.

Moist heathy places, and by the sides of lakes, less frequent than the preceding. Shore of the lower lake of Killarney, with the last. Bogs and moist grounds in the county of Cork, abundant; *Mr. J. Drummond.* Plentiful in Cunnamara, less frequent in the county of Wicklow. *Fl.* July, Aug. ♃.—Four to six inches high. Lower *leaves* sometimes with 1 or 2 teeth at the base, and hence, subhastate; upper ones much narrower, and quite entire. *Flowers* pale reddish. Lower *lip* spotted.

17. THYMUS. *Linn.* Thyme.

Flowers whorled or capitate. *Calyx* with 10 ribs, tubular, 2-lipped, upper *lip* 3-toothed, lower one bifid, the throat hairy. *Corolla* with the upper *lip* erect, nearly plane, notched, lower patent and trifid. *Benth.*—Name, θυμος, *strength,* from its balsamic odour, strengthening the animal spirits. *Didynamia. Gymnospermia.*

* *Calyx campanulate. Middle lobe of the lower lip of the corolla entire.*

1. T. *Serpyllum,* Linn. *Wild Thyme.* Flowers in small heads; stems recumbent; leaves flat, ovate, obtuse, entire, fringed at their base. *Br. Fl.* 1. *p.* 272. *E. Fl. v.* iii. *p.* 107. *E. Bot. t.* 1543.

Hills and dry pastures, abundant, *Fl.* July, Aug. ♃.—Variable in the hairiness of the leaves, which are sometimes all over hoary, and in the size of the plant, which on the limestone rocks at Mucruss, and in the county of Clare, assume a shrubby appearance; also in the scent of its foliage, which sometimes approaches that of the Lemon Thyme of the gardens, *(S. citratum of Ray's Synopsis,) (T. Serpyllum var.* ι *of Smith,)* which has not yet been found in Ireland. *Flowers* purple, rarely white.

* * *Calyx cylindrical. Middle lobe of the lower lip of the corolla emarginate.*

3. T. *Calamintha,* Scopoli. *Calamint.* Whorls on forked many-flowered stalks; leaves with shallow serratures; hairs in the mouth of the calyx not prominent. *E. Fl. v.* iii. *p.* 109. *E. Bot. t.* 1414.—*Melissa Calamintha, Linn.—Calamintha officinalis, Mœnch. Br. Fl.* 1. *p.* 279.

Way-sides and gravelly places. Road-side between Monkstown and Glenagary, county of Dublin; *Major Percy Pratt.* Near Newcastle, county of Wicklow; *Doctor Aquilla Smith.* Old walls near Cork; *Mr. J. Drummond. Fl.* July, Aug. ♃.—*Plant* downy, aromatic. *Stem* erect, bushy. *Leaves* ovate, about an inch long. *Flowers* pale purple, spotted with darker colour. Said to be employed in making herb tea.

18. PRUNELLA. *Linn.* Self-heal.

Calyx ovate, upper *lip* plane, more or less distinctly 3-toothed, lower one bifid. *Corolla* with the upper lip nearly entire, arched; lower one 3-lobed. *Filaments* with two teeth at the extremity, one bearing the *anther.*—Name, from the German, *braüne,* the *quinsy,* whence *Brunella* of Ray, softened into *Prunella.* *Didynamia. Gymnospermia.*

1. P. *vulgaris,* Linn. *Self-heal.* Leaves stalked, oblongo-ovate; upper lip of the calyx truncated, its teeth almost obsolete. *Br. Fl.* 1. *p.* 281. *E. Fl. v.* iii. *p.* 114. *E. Bot. t.* 961.

Moist and barren pastures, frequent. *Fl.* July, Aug. ♃.—*Flowers* very densely whorled, so as to form an imbricated oblong *spike,* with a pair of leaves at its base, and a pair of broad, obcordate *bracteas* beneath each whorl. *Corolla* violet blue, its lower lip finely toothed at the margin.

19. CLINOPODIUM. *Linn.* Wild Basil.

Whorls many-flowered, with numerous, linear bracteas, forming a sort of *involucre.* *Calyx* tubular, 13-nerved, nearly equal at the base, often curved; upper lip 3-toothed; lower one trifid. *Corolla* with the upper lip nearly plane, emarginate; lower one 3-lobed; middle lobe emarginate.—Name κλινη, a *bed,* and πυς, ποδος, a *foot,* from the compact stalked head of flowers. *Didynamia. Gymnospermia.*

1. C. *vulgare,* Linn. *Wild Basil.* Whorls bristly; involucral leaves awl-shaped; flowerstalks branched; leaves obscurely serrated. *Br. Fl.* 1. *p.* 280. *E. Fl. v.* iii. *p.* 105. *E. Bot. t.* 1041.

Hills and dry bushy places. Hilly grounds between Enniskerry and Bray. On several of the islands in the lower lake of Killarney, and road-side near Kenmare, on a limestone soil. *Fl.* Aug. ♃.—One to a foot and a half high, with soft hairs. *Flowers* in crowded whorls, large, purple.

20. ORIGANUM. *Linn.* Marjoram.

Spikes (or Heads) of flowers 4-sided, resembling a *catkin,* imbricated with bracteas. *Calyx* various. *Corolla* with the upper *lip* erect, nearly plane, lower one patent, trifid. *Benth.*—Name, ορος, a *hill,* and γανος, *joy,* from the dry hilly places of which the species are the ornament. *Didynamia. Gymnospermia.*

1. O. *vulgare,* Linn. *Common Marjoram.* Heads of flowers roundish, panicled, crowded, glabrous; bracteas ovate, longer than the calyx; leaves ovate, entire. *Br. Fl.* 1. *p.* 272. *E. Fl. v.* iii. *p.* 106. *E. Bot. t.* 1143.

Dry hills and bushy places, not unfrequent. *Fl.* July, Aug. ♃.—*Stems* one foot high. *Flowers* purple, and the *bracteas* tinged with the same colour. Fragrant and aromatic.

> " The Thyme strong-scented 'neath one's feet,
> And *Marjoram* so doubly sweet."—*Clare.*

SUBCLASS IV. MONOCHLAMYDEÆ. *De Cand.*

Perianth single; the calyx and corolla forming but one floral covering, or altogether wanting.

ORD. 60. POLYGONEÆ. *Juss.* Buck-Wheat Family.

Perianth monophyllous, divided, with an imbricated æstivation. Stamens definite, inserted at the bottom of the perianth: cells of the anthers opening longitudinally. Ovary free, 1-

seeded, with a single erect ovule: styles and stigmas several. Albumen farinaceous, sometimes almost none. Embryo inverted, generally on one side. Plumule inconspicuous.—*Herbs, rarely shrubs, common to almost every part of the world. Leaves alternate, sheathing at the base or adnate, with an intrafoliaceous sheath* (ochrea), *revolute when young. Flowers sometimes separated, generally racemose.*

The plants of this Order, generally speaking, possess an acid and astringent principle in their stems and leaves, while the roots are nauseous and purgative. The farinaceous or mealy albumen may be used as food.

1. Rumex. *Linn.* Dock and Sorrel.

Perianth 6-parted; the three outer segments somewhat cohering at the base; the three inner becoming enlarged after flowering. *Stamens* 6. *Styles* 3, reflexed; *stigmas* 3, cut. *Nut* with three sharp angles. *Embryo* on one side. *Radicle* superior.—Name of unknown origin.

Hexandria. Trigynia.

* *Plants not acid. Flowers perfect.* (Lapathum *Dock.*)

1. R. *Hydrolapathum*, Huds. *Great Water Dock.* Enlarged sepals ovato-deltoid, reticulated, each with a tubercle, entire; leaves lanceolate, the lower ones cordate at the base; whorls mostly leafless. *Br. Fl.* 1. *p.* 168. *E. Fl. v.* ii. *p.* 195. —*R. aquaticus, Sm. Fl. Br. p.* 394. *E. Bot. t.* 2104.

Sides of rivers and lakes. Banks of the Shannon opposite Limerick, and banks of Lough Erne, in ditches. Banks of Lough Neagh; *Mr. Templeton. Fl.* July, Aug. ♃.—The largest of our *Docks*, from 3 to 5 feet high. Some of the lower *leaves* a foot and a half long. *Root* large, very astringent. Enlarged *sepals*, with prominent veins, and large oblong tubercles.

2. R. *crispus*, Linn. *Curled Dock.* Enlarged sepals broadly cordate, entire, reticulated; tubercle on one, large, coloured; obsolete on the other two; leaves lanceolate, waved, acute; upper whorls leafless. *Br. Fl.* 1. *p.* 168. *E. Fl. v.* ii. *p.* 191. *E. Bot. t.* 1998.

Way-sides, near houses and pastures, frequent. *Fl.* June, July. ♃.—Two or three feet high. *Lower leaves* the broadest, all waved and crisped at the margins. *Whorls* of *flowers* very numerous and crowded.

3. R. *sanguineus*, Linn. *Bloody-veined Dock.* Enlarged sepals (small), oblong, entire, one at least bearing a tubercle; leaves lanceolate, somewhat cordate; whorls distant, on long, generally leafless branches. *Br. Fl.* 1. *p.* 169.

α. leaves with bright red veins. *R. sanguineus, Linn.—E. Bot. t.* 1533. *E. Fl. v.* ii. *p.* 190.

β. leaves with green veins. *R. viridis, Sibth.—Sm. Fl. Br. p.* 390.—*R. Nemolapathum, Ehrh.*

Shady pastures, woods, and road-sides. α. In an old orchard at Friar's-walk near Cork; *Mr. J. Drummond.* β. Not unfrequent. *Fl.* July. ♃.

4. R. *acutus*, Linn. *Sharp Dock.* **Enlarged sepals oblong, obscurely toothed, all tubercled; leaves oblong, heart-shaped, pointed; clusters leafy.** *Br. Fl.* 1. *p.* 169. *E. Fl. v.* ii. *p.* 192. *E. Bot. t.* 724.

Moist deep soils and in watery places, common. *Fl.* July. ♃.—*Stem* two feet high, somewhat purplish, and reclining. *Leaf-stalks* flat. *Branches* lax, elongated.

5. R. *pulcher*, Linn. *Fiddle Dock.* Enlarged sepals ovate, deeply toothed, one of them principally bearing a tubercle; root-leaves panduriform; stem spreading. *Br. Fl.* 1. *p.* 169. *E. Fl. v.* ii. *p.* 193. *E. Bot. t.* 1576.

Pastures and way-sides. About Friar's-walk, Cork; *Mr. J. Drummond.* Near Dunleary, &c. *Fl.* Aug. ♃.—*Stems* very straggling. *Whorls* distant, on slender leafy branches.

6. R. *obtusifolius*, Linn. *Broad-leaved Dock.* Enlarged sepals ovate, toothed at the base, one principally bearing a tubercle; root-leaves ovate-cordate; stem roughish. *Br. Fl.* 1. *p.* 169. *E. Fl. v.* ii. *p.* 192. *E. Bot. t.* 1999.

Way-sides and waste places, common. *Fl.* July. ♃.—Two or three feet high. *Whorls* rather close, somewhat leafy. Distinguishable by its broad, obtuse, radical *leaves*, which are generally crisped at the margin. *Stems* scabrous between the elevated lines or ridges.

7. R. *maritimus*, Linn. *Golden Dock.* Enlarged sepals deltoid, fringed with setaceous teeth, and bearing grains; whorls much crowded; leaves linear-lanceolate. *Br. Fl.* 1. *p.* 169. *E. Fl. v.* ii. *p.* 193. *E. Bot. t.* 723.

Marshes, principally near the sea. In a marsh near Clay Castle, Youghal; *Mr. J. Drummond.* *Fl.* July, Aug. ♃.—Well distinguished from all the preceding species by its narrow *leaves*, excessively crowded *flowers*, bright, almost orange-coloured, enlarged *sepals*, and their setaceous teeth.

8. R. *palustris*, Sm. *Yellow Marsh Dock.* Enlarged sepals lanceolate, with short setaceous teeth near the base, and bearing tubercles; whorls remote; leaves linear-lanceolate. *Br. Fl.* 1. *p.* 170. *E. Fl. v.* ii. *p.* 194. *E. Bot. t.* 1932.

Marshy grounds near Youghal, along with the last; *Mr. J. Drummond.* *Fl.* July. ♃.—*Stem* two feet high, stout, sometimes reddish. *Leaves* stalked, crisped at the edges, radical ones large, the rest small and narrow. *Whorls* tawny yellow; upper half of the sepals entire; lower with three rather short teeth. Mr. Moore remarks, that there must be some mistake in supposing that this only grows remote from the sea, as he finds it plentifully on the Derry coast, between Portstewart and Portrush, where the spray of the sea washes over it.

* * *Flowers diœcious. Plants acid.* (Acetosa *or* Sorrels.)

9. R. *Acetosa*, Linn. *Common Sorrel.* Enlarged sepals orbiculari-cordate, reticulated, scarcely tubercled; leaves oblongo-sagittate. *Br. Fl.* 1. *p.* 170. *E. Fl. v.* ii. *p.* 196. *E. Bot. t.* 127.

Meadows and pastures, frequent. *Fl.* June, July. ♃.—*Stem* 1—2 feet high. Lower *leaves* stalked, with two lateral teeth, upper ones sessile. *Clusters* erect, leafless. *Flowers* reddish.

10. R. *Acetosella*, Linn. *Sheep's Sorrel.* Enlarged sepals ovate, not tubercled; lower leaves lanceolato-hastate, lobes entire. *Br. Fl.* 1. *p.* 170. *E. Fl. v.* ii. *p.* 197. *E. Bot. t.* 1674.

Dry pastures, frequent. *Fl.* May—July. ♃.—Variable in size from 2 to 10 inches, and in the form of its *leaves*.

2. OXYRIA. *Hil.* Mountain-Sorrel.

Perianth of four sepals, the two inner ones rather largest. *Nut* triquetrous, with a broad membranaceous margin. *Embryo* erect, inverted.—Name from οξυς, *sharp* or *acid*, from the acid flavour of this, as of many other plants belonging to the same natural family. *Hexandria. Digynia.*

1. O. *reniformis*, Hook. *Kidney-shaped Mountain-Sorrel. Br. Fl.* 1. *p.* 167. *E. Fl. v.* ii. *p.* 188. *E. Bot. t.* 910.

Moist alpine rocks. On Magillycuddy's Reeks, and Brandon mountain, county of Kerry: and on Ben Bulben, county of Sligo. *Fl.* July, Aug. ♃.—"*Stems* 8—10 inches high, with rarely more than one leaf, often naked. *Radical-leaves* numerous, all reniform, with a more or less evident obtuse sinus at the apex, on long footstalks, having membranaceous *stipules* at their base. *Racemes* and peduncles branched, with minute, ovate, membranaceous *bracteas* at the base of each ramification. *Pedicels* thickened upwards. *Flowers* erect, small. *Stamens* 6, shorter than the sepals. *Pistil* nearly orbicular, compressed, notched, with two feathery spreading *styles*. *Fruit* a *nut*, enclosed in an *utricle*, with a remarkably broad winged border, tipped with the *styles*, situated in rather a deep notch, and having at the base the pointed sepals, not at all enlarged." *Hooker.*

3. POLYGONUM. *Linn.* Persicaria, Knot-grass and Buckwheat.

Perianth single, in five deep, coloured, persistent segments, inferior. *Stamens* 5—8. *Styles* 2—3. *Fruit* a one-seeded, compressed or trigonous *nut.*—Named from πολυς, *many*, and γονυ, a *knee* or *joint*; from the numerous joints of the stem. *Octandria. Trigynia.*

* *Styles* 3. *Nut triquetrous.*

1. P. *Bistorta,* Linn. *Bistort, or Snakeweed.* Stem simple, bearing one spike; leaves ovate, waved, the radical ones tapering into a footstalk. *Br. Fl.* 1. *p.* 182. *E. Fl. v.* ii. *p.* 236. *E. Bot. t.* 509.

Moist pastures, rather rare. Field at Ballickey, Bantry; *Miss Hutchins.* Near Moira; *Mr. Templeton.* Near Monkstown; *Major P. Pratt.* Spring-hill, near Moneymore, on limestone, abundant; *Mr. D. Moore. Fl.* June. ♃.—One to one and a half foot high. Upper *leaves* with long sheaths. *Spikes* cylindrical, dense. *Flowers* flesh-coloured, on short foot-stalks, with small *bracteas* at their base. *Stamens* 8. *Styles* 3. *Perianth* pale flesh-coloured, almost white.

2. P. *aviculare,* Linn. *Knot-grass.* Flowers nearly solitary, axillary; leaves elliptico-lanceolate; stipules much shorter than the leaves, nerves of the stipules distant; stem procumbent, herbaceous. *Br. Fl.* 1. *p.* 182.

α. Fruit included within the perianth, striated with raised points. *P. aviculare, Linn. E. Bot. t.* 1252. *E. Fl. v.* ii. *p.* 238.

β. Fruit longer than the perianth, quite smooth on the surface; (leaves elliptic, flaccid.)—*P. marinum, Raii Syn.* 147; excluding all the synonyms.

Waste places, way-sides, and paved courts, common. β. Sea-coast near Sandymount, and elsewhere near Dublin. *Fl.* May—Sept. ⊙.—Varying much in size. I have long thought, as Dr. Hooker does, that the maritime var. β. will prove a distinct species from the common *P. aviculare.* It is much larger in all its parts, with procumbent widely spreading *stems. Bracteas* large and scariose. *Flowers* twice the size of α, and the fruit much larger, protruded, and even on the surface. It may be readily distinguished at first sight by its large flaccid leaves, which are of a pale green colour.

3. P. *Fagopyrum,* Linn. *Buck-wheat.* Leaves cordato-sagittate; stem nearly upright, without prickles; angles of the fruit even. *Br. Fl.* 1. *p.* 182. *E. Fl. v.* ii. *p.* 239. *E. Bot. t.* 1044.

Cultivated ground, but introduced by cultivation, being often sown as food for pheasants and other poultry. *Fl.* July, Aug. ⊙.—*Stem* nearly erect, waved, one foot high, branched. *Flowers* in spreading panicles, terminal and lateral, pale reddish.

4. P. *Convolvulus,* Linn. *Climbing Buck-wheat.* Leaves cordato-sagittate, stem twining, angular; segments of the perianth bluntly keeled. *Br. Fl.* 1. *p.* 183. *E. Fl. v.* ii. *p.* 239. *E. Bot. t.* 941.

Corn-fields, frequent. *Fl.* July, Aug. ⊙.—Very long, climbing. *Spikes* of four, whorled, greenish *flowers,* lateral and leafy.

* * *Styles mostly* 2. *Nuts compressed.*

5. P. *amphibium,* Linn. *Amphibious Persicaria.* Flowers

pentandrous; styles forked; spike oblongo-ovate; leaves petiolate, cordato-lanceolate, rough at the margins. *Br. Fl.* 1. *p.* 183. *E. Fl. v.* ii. *p.* 232. *E. Bot. t.* 436.

α. *aquaticum*, leaves floating, broadly lanceolate, glabrous; spikes oblong.

β. *terrestre*, nearly erect; leaves narrow, lanceolate, rough, with short, rigid, appressed hairs on both sides; spikes ovate.

Ponds, lakes, and ditches, on their margins, frequent. *Fl.* July, Aug. ♃.—*Stem* 2—3 feet long, scarcely branched when growing in the water. *Leaves* arising from long, tubular *sheaths* or *stipules*, glabrous in β, but hispid in α. *Spikes* mostly solitary, terminal, of a bright rose-colour. This is the only perennial species of the *Persicaria* group.

6. P. *Persicaria*, Linn. *Spotted Persicaria.* Flowers hexandrous; styles forked; leaves lanceolate (often spotted); spikes oblong, erect, their peduncles smooth; stipules fringed. *Br. Fl.* 1. *p.* 183. *E. Fl. v.* ii. *p.* 233. *E. Bot. t.* 756.

Moist ground and waste places, frequent. *Fl.* Aug. ⊙.—*Stems* erect, branched, one foot to two feet high. *Spikes* terminal and lateral, dense, greenish, the tips of the *flowers* rose-coloured. *Leaves* nearly sessile, glabrous.

7. P. *lapathifolium*, Linn. *Pale-flowered Persicaria.* Flowers hexandrous, with two distinct styles; leaves ovato-lanceolate, shortly petiolate; spikes oblong, erect, their peduncles rough; stipules not fringed. *Br. Fl.* 1. *p.* 183. *E. Fl. v.* ii. *p.* 234. *E. Bot. t.* 1382.

Fields and dung-hills. In low moist ground near Cork; *Mr. J. Drummond.* Dung-hills near Belfast and other places. *Fl.* Aug. ⊙.—One foot or one foot and a half high. A very variable species. The *flowers* are either pale green, almost white, or of a reddish tint. *Spikes* dense, terminal and lateral.

8. P. *Hydropiper*, Linn. *Biting Persicaria.* Flowers hexandrous; styles forked; leaves lanceolate, waved and spotless; spikes lax, filiform, drooping; stem erect. *Br. Fl.* 1. *p.* 183. *E. Fl. v.* ii. *p.* 235. *E. Bot. t.* 989.

Sides of lakes and ditches, and damp places near farm-yards. *Fl.* Aug. Sept. ⊙.—One to two feet high or more, erect. Remarkable for its slender, long, more or less drooping *spikes* of distant, reddish flowers; they are lateral and terminal.

9. P. *minus*, Huds. *Small creeping Persicaria.* Flowers hexandrous; style undivided; leaves linear-lanceolate, plane, very shortly petiolate; spikes slender, erect; stem rooting at the base. *Br. Fl.* 1. *p.* 183. *E. Fl. v.* ii. *p.* 235. *E. Bot. t.* 1043.

On gravelly, watery commons, not found near Dublin. Moist ground near Cork; *Mr. J. Drummond.* On the shore of Ballygowan Lake, and Castle Blaney Lake, near Church-hill; *Mr. Templeton.* Side of the Bann, below Coleraine; *Mr. D. Moore,* from whom I lately received specimens. *Fl.* Sept. ☉.—Nearly allied to *P. Hydropiper*, but much smaller, procumbent below, with upright *spikes*, narrow *leaves*, and undivided *stigmas*.

ORD. 61. CHENOPODEÆ. *Vent.* Goose-foot Family.

Perianth monophyllous, deeply divided, sometimes tubular at the base, persistent, with an imbricated æstivation. Stamens inserted at the bottom of the perianth, and opposite to its segments, equal in number to them, or fewer. Ovary single, free, rarely adherent with the tube of the perianth, with a single ovule fixed to the bottom of the cavity: style divided, 2—4-fid, rarely simple: stigmas undivided. Pericarp membranous, valveless, sometimes a berry. Embryo curved round a farinaceous albumen; or spiral or bicrural, without albumen: radicle next the hilum: plumule inconspicuous.—*Generally distributed herbs or low shrubs, especially in temperate regions. Leaves alternate, without stipules, sometimes opposite. Flowers small, sometimes polygamous.*

Of this Order, many individuals are potherbs; some are tonic and anti-spasmodic; others, the saline species, yield a great quantity of carbonate of soda. *Chenopodium olidum* exhales pure ammonia.

1. SALSOLA. *Linn.* Saltwort.

Perianth single, inferior, 5-cleft, persistent, enveloping the fruit with its base, and crowning it with its broad scariose limb. *Seed* solitary, its *cotyledon* spiral.—Named from *sal*, salt. From many of this tribe abundance of alkaline salt is obtained, as is implied by the name of our only British species.
Pentandria. Digynia.

1. S. *Kali*, Linn. *Prickly Saltwort.* Stems herbaceous, prostrate; leaves subulate, spinous, scabrous; segments of the perianth margined, scarious. *Br. Fl.* 1. *p.* 139. *E. Fl. v.* ii. *p.* 18. *E. Bot. t.* 634.

Sea-shores, frequent. *Fl.* July. ☉.—*Stem* angled, very much branched. *Flowers* solitary, pale greenish, sessile, with three leaf-like bracteas at the base of each.

2. SALICORNIA. *Linn.* Glasswort.

Perianth single, turbinate, fleshy, obscurely lobed. *Stamens* one or two. *Style* short. *Stigmas* bi-trifid. *Fruit* an *utricle*, included in the enlarged *perianth*.—Name, from *sal*, *salt*, and *cornu*, a *horn*, from the horn-like branches and saline nature of the plants. *Monandria. Monogynia.*

1. S. *herbacea*, Linn. *Jointed Glasswort.* Stem herbaceous; articulations compressed, somewhat thickened upwards and notched; spikes cylindrical, slightly tapering at the extremity. *Br. Fl.* 1. *p.* 1.

α. Stem erect. *S. herbacea, E. Fl. v.* i. *p.* 2.—*S. annua, E. Bot. t.* 415.—*S. acetaria, Pallas.*

β. Stem procumbent. *S. procumbens, E. Bot. t.* 2475. *E. Fl. v.* 1. *p.* 2.—*S. prostrata, Pallas.*

Salt marshes, plentiful. *Fl.* Aug. Sept. ⊙.—"*Plant* leafless, much branched and jointed; articulations a little thickened upwards, very succulent, shrinking much when dry, in which state the upper extremity of each articulation forms a two-lobed membranous socket or short sheath, which receives the base of the articulation above it. *Spikes* of *flowers* dense, lateral and terminal, equally jointed with the stem, and bearing at the base of every short articulation, on two opposite sides, a cluster of three *flowers*, each composed of a single *perianth*, apparently quite closed at the top, and pierced, as it were, by the bifid or trifid *stigma*, and the single or two *stamens*: when two, appearing in succession. Mr. Wilson observes, that the central flower (of the erect var. at least) has *two* stamens, one placed below, the other above, the laterally compressed germen; and that the side-flowers have only *one*, placed above the germen." *Hooker.*

2. S. *radicans*, Sm. *Creeping Glasswort.* Stem woody, procumbent and rooting; articulations cylindrical, spreading and notched at the top; spikes oblong, obtuse. *Br. Fl.* 1. *p.* 2. *E. Bot. t.* 1691, and *t.* 2467, (*S. fruticosa.*) *E. Fl. v.* i. *p.* 3, *and again p.* 3, (*S. fruticosa.*)

Muddy and gravelly sea-shores. Strand at Narrow-water, below Newry, where it was first pointed out to me, above twenty years ago, by the late Mr. Templeton. *Fl.* Aug. Sept. ♃.—This scarcely differs from the last, except in its more branching, straggling, and *perennial stem*, quite woody below. The true S. *fruticosa*, not uncommon in green-house collections, is a very different plant, confined to the south of Europe and north of Africa.

3. CHENOPODIUM. *Linn.* Goose-foot.

Perianth single, inferior, 5-cleft, persistent and unaltered, closing upon, but not wholly enveloping, the *fruit. Seed* solitary.—Name from χην, χηνος, a *Goose*, and πυς, a *foot*, from the shape of the leaves in some of the species. They are more or less employed as potherbs. *Pentandria. Digynia.*

* *Leaves semicylindrical. Flowers each with two bracteas.*

1. C. *maritimum*, Linn. *Annual Sea-side Goose-foot.* Leaves semicylindrical, a little tapering upwards; styles two; stem herbaceous. *Br. Fl.* 1. *p.* 136. *E. Fl. v.* ii. *p.* 16. *E. Bot. t.* 633.

Sea-shores in muddy and sandy places, frequent. *Fl.* July, Aug. ⊙.—From 9—18 inches high. *Root* small, tapering. *Stems* one or more, of a woody texture, erect, much branched, roundish, clothed with numerous sessile, alternate, narrow, thick, juicy, smooth *leaves*, about half an inch long, salt to the taste, of a light bright green. *Flowers* several together, sessile, each with a pair of small acute, close bracteas. *Seed* orbicular, black, minutely striated. The alkaline salt of this herb renders it serviceable in making glass, though supposed inferior to some kinds of *Salsola*, found in the south of Europe.

* * *Leaves plane, undivided; bracteas under each flower none.*

2. C. *olidum*, Curt. *Stinking Goose-foot.* Leaves ovato-rhomboid, entire; flowers in dense clustered spikes; stem diffuse. *Br. Fl.* 1. *p.* 137. *E. Fl. v.* ii. *p.* 14. *E. Bot. t.* 1034.

Waste places and under walls, especially near the sea. Found sparingly near Sandymount, and between the Custom-house and Annesly-bridge, several years ago. *Fl.* Aug. ☉.—*Leaves* small, petiolate, greasy to the touch, and covered with a pulverulent substance, which, when bruised yields a detestable odour, resembling that of putrid fish.

* * * *Leaves plane, toothed, angled or lobed; bracteas none.*

3. C. *Bonus Henricus*, Linn. *Mercury Goose-foot, or good King Henry.* Leaves triangular, arrow-shaped, entire; spikes compound, terminal and solitary, erect, leafless. *Br. Fl.* 1. *p.* 137. *E. Fl. v.* ii. *p.* 10. *E. Bot. t.* 1033.

Waste places and way-sides, frequent. *Fl.* Aug. ♃.

4. C. *urbicum*, Linn. *Upright Goose-foot.* Leaves triangular, toothed; spikes long, erect, approaching the stem, almost leafless; flowers scattered on the spikes. *Br. Fl.* 1. *p.* 137. *E. Fl. v.* ii. *p.* 10. *E. Bot. t.* 717.

Waste places under walls, particularly about towns and villages. In the College-park and other places near Dublin. *Fl.* Aug. ☉.—*Stem* erect, angular. *Leaves* large, truncate, or subcuneate at the base, of a light or subglaucous green, their margins deeply and irregularly toothed. *Flowers* on the spikes, in rather small, but remote clusters; *spikes* very long and erect. *Seeds* (or *fruits*) large in comparison with those of the following species, "almost as large as rape-seed." (*Curtis.*)

5. C. *rubrum*, Linn. *Red Goose-foot.* Leaves triangular, somewhat rhomboid, toothed and serrated; spikes erect, compound, leafy; flowers crowded on the spikes; fruit very minute. *Br. Fl.* 1. *p.* 137. *E. Fl. v.* ii. *p.* 11. *E. Bot. t.* 1721.

Dung-hills and under walls. Near Dublin, Cork, and Belfast. *Fl.* Aug. Sept. ☉.—Of a darker green than the last. *Stems* frequently reddish. *Leaves* always more or less attenuated at the base, by no means truncate. *Spikes* very compound, thick. The salt (or alkali) contained in the juice of this plant, crystallises upon the surface of the stem. (*Mr. W. Wilson.*) *Hooker.*

6. C. *murale*, Linn. *Nettle-leaved Goose-foot.* Leaves ovate, approaching to rhomboid, acute, toothed, shining; spikes much branched, cymose, leafless. *Br. Fl.* 1. *p.* 138. *E. Fl. v.* ii. *p.* 11. *E. Bot. t.* 1722.

Under walls and in waste places about towns and villages. Frequent near Dublin. *Fl.* Aug. ⊙.—Branches of the *spikes* spreading. *Flowers* rather distant. Smell unpleasant.

7. C. *album*, Linn. *White Goose-foot.* Leaves ovate, inclining to rhomboid, erose, entire at the base, upper ones oblong, perfectly entire; spikes branched, somewhat leafy; fruit smooth. *Br. Fl.* 1. *p.* 138. *E. Fl. v.* ii. *p.* 13. *E. Bot. t.* 1723.

β. Leaves green, more entire, spikes elongated, more branched. *C. viride*, *Linn.*

Waste places, dunghills, &c. common. *Fl.* July, Aug. ⊙.—Leaves covered with a whitish and mealy substance, varying in width, and in the erosion, or blunt toothing, of the upper half of the margins of its *leaves.* When these are nearly entire, it is the *C. viride* of *Linn.*

8. C. *ficifolium*, Linn. *Fig-leaved Goose-foot.* Leaves ovato-oblong, toothed and sinuated at the margin, somewhat hastate, upper ones oblong, quite entire; fruit dotted. *Br. Fl.* 1. *p.* 138. *E. Fl. v.* ii. *p.* 13. *E. Bot. t.* 1724.

Dunghills and waste ground. Found in the County of Cork by Mr. Drummond, but the particular place is not mentioned. (Dr. Hincks.) *Fl.* Aug. Sept. ⊙.

4. BETA. *Linn.* Beet.

Perianth single, half inferior, 5-cleft, persistent. *Seed* one, reniform, imbedded in the fleshy base of the calyx.—Name derived from the Celtic *bett,* according to Theis, which means *red.* *Pentandria. Digynia.*

1. B. *maritima*, Linn. *Sea Beet.* Stems procumbent at the base; seeds solitary, or in pairs; calycine segments entire. *Br. Fl.* 1. *p.* 139. *E. Fl. v.* ii. *p.* 17. *E. Bot. t.* 285.

Sea-shores in muddy places, and on decayed rocks, as at Howth, on the Sutten side, and many other places. *Fl.* Aug. ♃. *Root* large, thick and fleshy. *Stem* tall, branched, angular. *Root-leaves* subovate, succulent, entire, waved. Spikes of *flowers* numerous, leafy. *Leaves* small at the base of the flower, or pair of flowers, which are greenish. A good substitute for spinage in the winter and spring months, and is often cultivated at Cork and other places on the coast on that account. Dr. Hooker states, that Mr. Wm. Wilson finds that there are always three styles in this species, and that the germen is 3-seeded, that the flowers are often three together, and that, when the seed is ripe, the germen becomes purple and granulated.

5. ATRIPLEX. *Linn.* Orache.

Sterile fl. and *united fl.* (which too are mostly barren.) *Perianth* single, 5-parted, inferior. *Stamens* five. *Style* 2-parted. *Pistilliferous fl.* *Perianth* single, of two, persistent, en-

larged valves. *Stamens* none. *Fruit* depressed, 1-seeded, covered by the *calyx.*—Name; *α, not,* and *τραφειν, to nourish.*
Polygamia. Monœcia.

1. A. *portulacoides,* Linn. *Shrubby Orache or Sea Purslane.* Stem shrubby; leaves obovato-lanceolate, entire, silvery white. *Br. Fl.* 1. *p.* 440. *E. Fl. v.* iv. *p.* 256. *E. Bot. t.* 261.

On decayed granite rocks on steep banks by the sea-side. On the south side of Howth, principally in one place. It has also been lately found near Tramore, county of Waterford. *Fl.* July, Aug. ♄.—One to two feet or more high, with small, yellowish *flowers,* in axillary spikes.

2. A. *laciniata,* Linn. *Frosted Sea Orache.* Stem herbaceous, spreading; leaves ovato-deltoid, dentato-sinuate, very mealy beneath. *Br. Fl.* 1. *p.* 440. *E. Fl. v.* iv. *p.* 257. *E. Bot. t.* 165.

Sea-coast, principally in small islands. Near Bangor, and Island Magee; *Mr. Templeton.* Plentiful on the western coast, particularly in a small island opposite to Cummin, near Sligo. Not found near Dublin. *Fl.* July, Aug. ⊙.—Whole *plant* hoary. *Flowers: sterile ones* in terminal *spikes;* the others axillary, nearly solitary, *fertile.*

3. A. *patula,* Linn. *Spreading Halberd-leaved Orache.* Stem herbaceous, spreading; leaves triangular-hastate, glabrous above, irregularly toothed, the upper ones entire; perianth of the fruit more or less tuberculated at the sides. *Br. Fl.* 1. *p.* 440. *E. Fl. v.* iv. *p.* 257. *E. Bot. t.* 936.

Cultivated and waste ground, and in salt marshes. *Fl.* July. ⊙.—*Stems* straggling; *branches* long, striated. *Flowers* in small *clusters,* in long interrupted axillary spikes. The var. γ. of Smith often occurs in sandy places near the sea. It is prostrate, more glaucous and fleshy, with a frequent tinge of red, and smaller, less toothed, or quite entire *leaves,* differing from its natural inland habit, as many other plants, in maritime situations, often do.

4. A. *angustifolia,* Sm. *Spreading narrow-leaved Orache.* Stem herbaceous, spreading; leaves lanceolate, entire, the lower ones partly 3-lobed, calyx of the fruit halberd-shaped, slightly warty at the sides. *Br. Fl.* 1. *p.* 440. *E. Fl. v.* iv. *p.* 258. *E. Bot. t.* 1774.

Cultivated and waste ground. *Fl.* July. ⊙.—This seems to be but a narrow-leaved var. of the preceding. (*Hooker.*)

5. A. *erecta,* Huds. *Upright Spear-leaved Orache.* Stem herbaceous, erect; leaves ovato-lanceolate, lower ones sinuated; calyx of the fruit all over armed with short tubercles. *Br. Fl.* 1. *p.* 440. *E. Fl. v.* iv. *p.* 260. *E. Bot. t.* 2223.

I have not seen Irish specimens of this species, but insert it on the authority of the accurate Mr. Drummond, who mentions his having found it on the coast near Cork. *Fl.* Aug. ⊙.

6. A. *littoralis,* Linn. *Grass-leaved Sea Orache.* Stem

herbaceous, erect; leaves all linear, entire or toothed; perianth of the fruit sinuated and muricated at the back. *Br. Fl.* 1. *p.* 440. *E. Fl. v.* iv. *p.* 260. *E. Bot. t.* 708.

Muddy salt-marshes, on the coast. On the muddy shore of Howth on the Sutten side, abundant. *Fl.* July. ⊙.—The under side of the *leaves* and *flowers* are mealy. The latter are in rather crowded, axillary, and terminal *spikes.*

7. A. *pedunculata.* Linn. *Stalked Sea Orache.* Stem herbaceous, zigzag, with spreading branches; leaves obovato-lanceolate; seed-bearing flowers, cuneate, 2-horned, on long stalks. *Hooher. Br. Fl.* 1. *p.* 440. *E. Fl. v.* iv. *p.* 261. *E. Bot. t.* 232.

Muddy salt-marshes. Cushtrower Bay, Cunnamara; *Doctor Wade.* I have not seen Irish specimens of this species, nor have I had an opportunity of examining the place where it is said to have been found. *Fl.* Aug. Sept. ⊙.—Well distinguished from all the other species by its long *peduncles*, and the peculiar shape of the seed-bearing *perianth*, especially when the fruit is ripe.

ORD. 62. SCLERANTHEÆ. *Link.* Scleranthus Family.

Flowers hermaphrodite. Calyx 4 or 5 toothed, with an urceolate tube. Stamens from 1 to 10, inserted into the orifice of the tube. Ovarium simple, superior, 1-seeded. Styles two or one, emarginate at the apex. Fruit a membranous utricle, enclosed within the hardened calyx. Seed pendulous from the apex of a funiculus, which arises from the bottom of the cell; embryo cylindrical, curved round farinaceous albumen. *Small herbs. Leaves opposite, without stipules. Flowers axillary, sessile.*

1. SCLERANTHUS. *Linn.* Knawel.

Calyx of one piece, 5-cleft. *Corolla* none. *Stamens* inserted upon the *calyx*, five frequently abortive or wanting. *Capsule* 1-seeded, covered by the calyx.—Name, from σκληρος, *hard*, and ανθος, a *flower*; from the indurated nature of the floral covering. *Decandria. Digynia.*

1. S. *annuus*, Linn. *Annual Knawel.* Calyx of the fruit with erecto-patent, rather acute segments; stems spreading; root annual. *Br. Fl.* 1. *p.* 189. *E. Fl. v.* iv. *p.* 282. *E. Bot. t.* 351.

Corn-fields, frequent.' *Fl.* July. ♃.—*Stems* many, much branched in a dichotomous manner, slender, subpubescent, straggling. *Leaves* linear-subulate, keeled, opposite and combined at the base by a membranous fringed margin. *Flowers* green, inconspicuous, in axillary leafy clusters. *Calyx* urceolate, ribbed, with five ovato-lanceolate teeth.

ORD. 63. URTICEÆ. *Juss.* Nettle Family.

Flowers monœcious or diœcious, scattered or clustered, or surrounded by a 1-leaved involucre. Perianth of one piece, membranaceous, lobed, persistent. BARREN FL. Stamens definite, inserted into the base of the perianth, and opposite its lobes: anthers curved inwards in æstivation, and often curving backwards with elasticity when bursting.—FERTILE FL. Ovary simple, free: ovule solitary, erect: stigma 1. Fruit an achenium, surrounded by the membranous or fleshy perianth. Embryo straight, curved, or spiral, with or without albumen: radicle superior, and thus remote from the hilum.—*Trees or shrubs, of almost every part of the world. Leaves alternate, sometimes opposite, with stipules often hispid and stinging, (sometimes very powerfully so), or rough.*

1. PARIETARIA. *Linn.* Wall-Pellitory.

Perianth 4-fid, inferior. *Filaments* of the *stamens* at first incurved, then expanding with an elastic force. *Fruit* 1-seeded, enclosed by the enlarged perianth, (One or more of the central florets without stamens.)—Name from *paries*, a *wall*, from the species frequently growing on old walls.

Tetrandria. Monogynia.

1. P. *officinalis*, Linn. *Common Pellitory of the wall.* Leaves ovato-lanceolate, 3-nerved above the base; "involucre in two portions, each of about seven segments; in each portion are three flowers, with one fertile one between them." *Wilson. Br. Fl.* 1. *p.* 69. *E. Fl. v.* i. *p.* 222. *E. Bot. t.* 597.

Old walls and waste places. *Fl.* during the summer months. ♃.—*Stems* often procumbent upon the wall, reddish, pubescent. *Leaves* alternate. *Flowers* small, hairy, purplish, clustered in the axils of the leaves. "In each portion of the involucre are three flowers apparently fertile," (*Wilson*), but of which the central one has only a pistil. The lateral ones have stamens and pistil. *Filaments* jointed, in which peculiarity exists the elastic property by which the pollen is so copiously discharged. This is remarkably the case in a hot summer's day. *Fruit* black, shining. *Pericarp* closely investing the seed.

2. URTICA. *Linn.* Nettle.

Barren fl. Perianth single, of four leaves, containing the cup-shaped rudiment of a pistil. *Fertile fl. Perianth* single, of two leaves. *Pericarp* 1-seeded, shining.—Name; from *uro*, to *burn*, in allusion to its stinging property.

Monœcia. Pentandria.

1. U. *pilulifera*, Linn. *Roman Nettle.* Leaves opposite,

ovate, serrated, with transverse nerves; fertile flowers in globular heads. *Br. Fl.* 1. *p.* 403. *E. Fl. v.* iv. *p.* 134. *E. Bot. t.* 148.

Under walls and among rubbish, principally near the sea. Ballylickey, near Bantry; *Miss Hutchins.* *Fl.* June, July. ⊙.—The most venemous of our native *Nettles.*

2. U. *urens,* Linn. *Small Nettle.* Leaves opposite, elliptical, with about five, nearly parallel ribs; clusters of flowers subsimple. *Br. Fl.* 1. *p.* 403. *E. Fl. v.* iv. *p.* 134. *E. Bot. t.* 1236.

Waste places, cultivated ground, and old dung-hills, frequent. *Fl.* June—Oct. ⊙.

3. U. *dioica,* Linn. *Great Nettle.* Leaves ovate, acuminate, cordate at the base; clusters much branched, in pairs, mostly diœcious. *Br. Fl.* 1. *p.* 403. *E. Fl. v.* iv. *p.* 135. *E. Bot. t.* 1750.

Waste places, under walls and hedges, frequent. *Fl.* July, Aug. ♃.—The *root,* boiled with alum, is said to dye yarn of a yellow colour; from the fibres of the stalk a kind of hemp is manufactured, as with the *Urtica cannabina* of N. America, (Whitlow's Nettle), and I remember having seen several years ago a piece of very good linen made from it, under the direction of a lady at Ballitore. In Scotland the young tops of Nettles are boiled and eaten by the peasantry; and they were also much used by many of the poor in the north of Ireland during the late years of scarcity, owing to the failure of the potato crops.

3. HUMULUS. *Linn.* Hop.

Barren fl. *Perianth* single, of five *sepals.* *Anthers* with two pores at the extremity. *Fertile fl.* *Scales* of the *catkin* large, persistent, concave, entire, single-flowered. *Perianth* none. *Styles* two. *Seed* one.—Name, *humus, rich soil* or *mould,* in which the plant flourishes.

Diœcia. Pentandria.

1. H. *Lupulus,* Linn. *Common Hop.* *Br. Fl.* 1. *p.* 433. *E. Fl. v.* iv. *p.* 240. *E. Bot. t.* 427.

Hedges, &c. probably introduced. Hedges between Cullenagh and Stradbally, Queen's County, and near Nenagh; in the largest of the south isles of Arran, creeping over the limestone rocks, and producing excellent hops. *Fl.* July. ♃.—*Stems* long, weak and climbing, scabrous. *Leaves* petiolate, opposite, 3—5-lobed, serrated, veiny, rough. *Flowers* greenish yellow. The fragrant bitter, so valuable in the manufacture of beer, resides in the *catkins,* or *cones* of the hop, as they are often called.

ORD. 64. RESEDACEÆ. *Lindl.* Mignonette Family.

Flowers included within a many-parted involucre, neuter on the outside, hermaphrodite in the centre. Calyx 1-sided undivided, glandular. Barren stamens of the sterile florets linear, petaloid. Fertile stamens perigynous, definite; filaments erect; anthers 2-celled, opening longitudinally. Ovarium sessile, 3-lobed, 1-celled, many-seeded, with three parietal placentæ. Stigmata 3, glandular, sessile. Fruit dry and membranous, or succulent, opening at the apex. Seeds several, reniform, attached to three parietal placentæ; embryo taper, arcuate, without albumen; radicle superior.—*Herbaceous plants, with alternate leaves, the surface of which is minutely papillose.*

1. RESEDA. *Linn.* Rocket.

Fruit dry, many-seeded, surrounded by the withered involucre. —Name from *resedo*, to calm; from some supposed medical qualities. *Dodecandria. Trigynia.*

1. R. *Luteola*, Linn. *Dyer's Rocket, Yellow-weed, or Weld.* Leaves lanceolate, undivided; involucre in four segments. *Lindl. Syn. p.* 219. *Br. Fl.* 1. *p.* 218. *E. Fl. v.* ii. *p.* 317. *E. Bot. t.* 320.

Waste, gravelly, or sandy places. *Fl.* July. ⊙.—2—3 feet high, branched. *Racemes* long, of numerous yellowish *flowers*, with prominent stamens. *Capsules* broad, depressed. Used in dying woollen stuffs yellow.

2. R. *lutea*, Linn. *Base Rocket, Wild Mignonette.* Leaves deeply 3-lobed, lower ones pinnatifid; involucre in six divisions. *Lindl. Syn. p.* 219. *Br. Fl.* 1. *p.* 218. *E. Fl. v.* ii. *p.* 348. *E. Bot. t.* 321.

Dry gravelly banks. On the side of Knockmaroon-hill, near Chapelizod. Abundant on the road-side between Oldcastle and the Abbey of Fore; *Rev. Mr. Halpin. Fl.* July, Aug. ♃.—*Leaves* very variable, some bipinnatifid. *Flowers* deeper yellow than the last. *Capsule* oblong, wrinkled.

3. R. *fruticulosa*, Linn. *Shrubby base Rocket.* Leaves all pinnated, waved, glaucous; involucre 5-parted; barren stamens five, nearly equal, trifid. *Br. Fl.* 1. *p.* 218. *Sm. in Rees' Cycl. E. Bot. Suppl. t.* 2628.

I first observed this plant growing by the way-side between Cork and Glenmire in 1805, and the following year on the banks of the Dodder and near Dundrum; a few years after it was found covering a ditch-bank at Portmarnock, where it has continued to grow in great abundance ever since. In all cases it has probably been introduced from gardens, or otherwise; it being a well known plant in gardens as the

Upright Mignonette. Fl. June. ⊙ or ♂.—*Stems* growing in a shrub-like manner from the root, (which is woody and tapering,) more or less branched, wand-like, hollow, striated, leafy, two or three feet high. *Racemes* terminal, erect, tapering, many-flowered. *Flowers* somewhat scattered below, but becoming extremely dense towards the top.

Ord. 65. EUPHORBIACEÆ. *Juss.* Spurge Family.

Flowers separated, naked, or with a three or more cleft perianth. Barren Fl. Stamens definite or indefinite, distinct or monadelphous: anthers 2-celled.—Fertile Fl. Ovary free, single, sessile, or stalked, 2—3- or more celled. Ovules solitary or in pairs, suspended from the inner angle of the cell: styles two, three, or many: stigmas simple, with many lobes or compound. Fruit of two, three, or more dehiscent cells (or *cocci*), separating with elasticity from their common axis. Seeds solitary or in pairs, suspended, arillate. Embryo in the axis of a fleshy albumen: radicle superior; cotyledons flat.—*Trees, shrubs or herbs, sometimes succulent and leafless, most common in the tropics, rare in cold and even temperate climates; abounding in an acrid and milky juice. Leaves alternate, opposite or whorled, rarely compound, often stipuled.*

This extensive and important Order affords a milky juice, which is acrid, caustic, and frequently highly poisonous. Many individuals belonging to it yield Caoutchouc, some are important articles of food. The albumen of the seeds in *Euphorbiaceæ* is harmless and even eatable. The embryo is acrid and dangerous.

1. Euphorbia. *Linn.* Spurge.

Involucre of one piece, including several barren flowers and one fertile.—*Barren fl.* A single *stamen* without calyx or corolla. *Fertile fl.* A single *pistil* without calyx (or rarely a very minute one) or corolla. *Germen* 3-lobed. *Styles* 3, cleft. *Capsules* 3-seeded.—Named from *Euphorbus*, Physician to Juba, King of Mauritania, who brought the plant into use. *Monœcia. Monandria.*

* *Glands of the involucre four, rounded on the outside.*

1. E. *helioscopia*, Linn. *Sun Spurge.* Umbel of five principal branches; bracteas and leaves membranaceous, obovato-cuneate, serrated upwards; capsule glabrous; seeds reticulated and pitted. *Br. Fl.* 1. *p.* 381. *E. Fl. v.* iv. 63. *E. Bot. t.* 883.

Abundant in waste and cultivated ground. *Fl.* July, Aug. ⊙.—The acrid milky juice is employed to destroy warts.

2. E. *hiberna*, Linn. *Irish Spurge.* Umbel of about five principal branches; bracteas and leaves elliptical, quite entire; glands of the involucre four, kidney-shaped, with intermediate rounded lobes; capsule warted, glabrous; seeds smooth. *Br. Fl.* 1. *p.* 382. *E. Fl. v.* iv. *p.* 67. *E. Bot. t.* 1337.

Woods and bushy places in moist ground. County of Donegal; *Robert Brown, Esq. LL.D.* Abundant in the County of Cork; *Mr. J. Drummond.* Plentiful between the lower and upper lakes of Killarney, and other places in Kerry, where I was told, many years ago, that it was used by the peasantry to stupify fish, by floating a basket in the water with its bruised roots and stalks. *Fl.* June. ♃.

* * *Glands of the involucre pointed or angular.*

3. E. *paralia*, Linn. *Sea Spurge.* Umbel of about five principal branches, often with inferior scattered ones; bracteas cordate, concave; leaves coriaceous, obovato- and linear-lanceolate, (generally) imbricated, glaucous, entire, concave; glands of the involucre (5), lunate; capsules wrinkled; seeds smooth. *Br. Fl.* 1. *p.* 382. *E. Fl. v.* iv. *p.* 63. *E. Bot. t.* 195.

Ballycotton, County of Cork; *Mr. J. Drummond.* Plentiful on the sand-hills near Baldoyle, and at Portmarnock, and other places on the coast near Dublin. It is also said to be found on the coast near Kilkeel, County of Down. *Fl.* Aug. Sept. ♃.—*Stems* numerous, from the same root, woody at the base. *Leaves* very closely imbricated, especially on the young shoots

4. E. *Portlandica*, Linn. *Portland Spurge.* Umbel with about five principal dichotomous branches, and several inferior scattered ones; bracteas triangular, cordate; leaves membranaceous, obovato-lanceolate, generally obtuse and submucronate; glands of the involucre (four) lunate, with two long points; capsule rough at the angles; seeds dotted (almost white.) *Br. Fl.* 1. *p.* 383. *E. Fl. v.* iv. *p.* 62. *E. Bot. t.* 441.

Principally confined to the coast near Dublin. On the ruined walls of the Church of Kilbarrick. Sand-hills opposite Malahide, and on the south side of Killiney-hill, below the Rev. Doctor Mac Donell's cottage, and farther westward on steep banks overhanging the sea. Corkbeg and Ballycotton, County of Cork; *Rev. Dr. Hincks.* *Fl.* Aug. ♃.—Much smaller than the preceding, being only from six to ten inches high. "This is very rare, if not unknown, on the Continent."—*Hooker.* It is found in Wales, on the Galloway coast, Scotland, and in the Isle of Man, and on Portland Island, whence its name.

5. E. *exigua*, Linn. *Dwarf Spurge.* Umbel of generally three principal branches; leaves linear-lanceolate, as well as the bracteas, rather rigid, entire, glabrous, often truncate and mucronate; glands of the involucre with two horns; capsules nearly smooth; seeds wrinkled. *Br. Fl.* 1. *p.* 383. *E. Fl. v.* iv. *p.* 60. *E. Bot. t.* 1336.

Corn-fields in a light soil, and gravelly places, frequent. *Fl.* July.

⊙.—Four to six inches high, branched at the base. *Seeds* small, white.

6. E. *Peplus,* Linn. *Petty Spurge.* Umbel of about three principal branches; bracteas ovate; leaves membranaceous, broadly ovate, on short stalks, entire, glabrous; glands of the involucre lunate, the horns very long; germen somewhat winged and scabrous; seeds dotted. *Br. Fl.* 1. *p.* 383. *E. Fl. v.* iv. *p.* 60. *E. Bot. t.* 959.

Cultivated and waste ground, abundant. *Fl.* July, Aug. ⊙.

7. E. *amygdaloides,* Linn. *Wood Spurge.* Umbel of about six principal branches, and several scattered peduncles below; leaves nearly membranaceous, obovato-lanceolate, hairy beneath, attenuated at the base, entire; bracteas perfoliated; glands lunate; capsules minutely dotted; seeds smooth. *Br. Fl.* 1. *p.* 383. *E. Fl. v.* iv. *p.* 68. *E. Bot. t.* 256.

Woods. Castle Barnard-park, near Bandon; *Miss Hutchins* and *Mr. Drummond,* also noticed in Smith's History of Cork. *Fl.* March, April. ♃.—*Stems* red, almost shrubby. A beautiful variety with variegated leaves is frequently met with in gardens.

2. Mercurialis. *Linn.* Mercury.

Barren fl. Perianth single, tripartite. *Stamens* 9—12. *Anthers* of two, globose lobes. *Fertile fl. Perianth* single, tripartite. *Styles* two. *Capsules* 2-celled; *cells* 1-seeded.—Name; the god *Mercury* is said to have discovered the virtues, of what kind soever they may be, of this plant.

Diœcia. Enneandria.

1. M. *perennis,* Linn. *Perennial or Dog's Mercury.* Stem perfectly simple; leaves rough; root creeping, perennial. *Br. Fl.* 1. *p.* 438. *E. Fl. v.* iv. *p.* 248. *E. Bot. t.* 1872.

Woods near Bantry; *Miss Hutchins.* Said to be common in the woods near Parsonstown. Not found near Dublin. *Fl.* April, May. ♃.—About one foot high. *Leaves* mostly on the upper part of the *stem,* ovate, serrated. *Flowers* in axillary, short, lax *spikes.* The plant in drying often becomes of a bluish, or blackish, green.

2. M. *annua,* Linn. *Annual Mercury.* Stems with opposite branches; leaves glabrous; root fibrous, annual. *Br. Fl.* 1. *p.* 438. *E. Fl. v.* iv. *p.* 248. *E. Bot. t.* 559.

Waste places about towns and villages. Very common about Dublin. *Fl.* Aug. ⊙.—One foot high. *Sterile flowers* in long, axillary, interrupted *spikes.*

Ord. 66. EMPETREÆ. *Nutt.* Crow-berry Family.

Flowers diœcious, separated, or polygamous. Perianth (?) of many imbricated scales, of which the 2—4 inner ones are sometimes larger, equal and petaloid. Stamens 2—4, alternating with the inner segments of the perianth : filaments long ; anthers 2-celled, roundish, the cells bursting along their margin. Ovary free, situated on a small fleshy disk : cells variable. Ovules solitary, ascending. Style 1 : stigma multifid, subpeltate. Fruit fleshy, surrounded by the persistent perianth, 3—9-celled, the coating of the cells bony. Seeds solitary, ascending : testa membranaceous. Embryo cylindrical, in the axis of a fleshy or somewhat horny albumen : radicle inferior : cotyledons much shorter than the radicle.—*Small heath-like shrubs, of Europe and N. America, and the Straits of Magellan. Leaves evergreen, alternate or verticillate, without stipules. Flowers small, axillary.*

EMPETRUM. *Linn.* Crow-berry.

Barren fl. Perianth, many imbricated *scales,* of which the three inner are often regular, spreading and petaloid. *Stamens* three, with long filaments. *Rudiment* of a pistil with a many-cleft *stigma. Fertile fl. Perianth,* as in the barren. *Germen* globose. *Style* short. *Stigma* dilated, peltate, rayed. *Berry* superior, globose, with 6—9 *seeds.*—Name; *εν, in,* and *πετρος,* a *stone ;* growing in stony places.
Diœcia. Triandria.

1. E. *nigrum,* Linn. *Black Crow-berry or Crake-berry.* Procumbent ; leaves linear-oblong. *Br. Fl.* 1. *p.* 434. *E. Fl. v.* iv. *p.* 234. *E. Bot. t.* 526.

Mountainous heaths, abundant. *Fl.* May. ♄.—A small, procumbent, much branched *shrub,* whose *leaves* are much recurved. *Flowers* axillary towards the summit of the branches, small, purplish. *Berries* black, clustered, affording abundant food to the moor-game when ripe.

ORD. 67. CALLITRICHINEÆ. *Link.* Water Starwort Family.

Flowers usually bisexual, monœcious, naked, with two fistular coloured bracteæ. Stamen single ; filament filiform, furrowed along the middle ; anther reniform, 1-celled, 2-valved ; the valves opening fore and aft. Ovarium solitary, 4-cornered, 4-celled ; ovules solitary, peltate ; styles two, right and left, subulate ; stigmas simple points. Fruit 4-celled, 4-seeded, indehiscent. Seeds peltate ; embryo inverted in the axis of fleshy albumen ; radicle very long, curved, superior ; cotyledons very short.—*Small aquatic herbaceous plants, with opposite, simple, entire leaves. Flowers axillary, solitary, very minute.*

1. CALLITRICHE. *Linn.* Water Starwort.

Barren fl. Perianth single, of two leaves (they are, rather, two *bracteas*) or none. *Anther* of one cell.—*Fertile fl. Germen* 4-lobed, lobes laterally compressed, indehiscent, with four 1-seeded cells.—Name; *καλος*, *beautiful*, and *θριξ*, *hair*. Its stems are long and slender, and resemble hairs.

Monœcia. Monandria.

1. C. *verna*, Linn. *Vernal Water Starwort.* Fruit bearing peduncles very short, with two bracteas at their base; fruit regularly tetragonal, each portion bluntly keeled at the back. *Arn. E. Fl. v.* i. *p.* 10. *Br. Fl.* 1. *p.* 384. *Arn. in Ed. Journ. of Nat. and Geogr. Sc. v.* 1. *p.* 426.—*C. aquatica, E. Bot. t.* 722. *Hook. in Fl. Lond. N. S. t.* 127.

Ditches, pools and slow streams, abundant. *Fl.* April, May. ⊙.—This varies much, as do almost all aquatic plants, in its foliage. *Leaves* invariably connate. (*W. Wilson.*) Upper and floating ones generally oval and stalked, 3-ribbed; lower ones single-ribbed, linear; rarely all linear. (*Hooker.*)

2. C. *autumnalis*, Linn. *Autumnal Water Starwort.* Fruit-bearing peduncles very short, without bracteas; fruit irregularly tetragonal, each portion broadly and acutely winged at the back. *Arn. E. Fl. v.* i. *p.* 10. *Br. Fl.* 1. *p.* 384. *E. Bot. Suppl. t.* 2732.—*C. aquatica, γ. E. Bot. t.* 722, (*the small figure.*)

Ditches near Lough Neagh; *Mr. Templeton* and *Mr. D. Moore. Fl.* June—Oct. ⊙.—Leaves always sessile, (*W. Wilson.*) *C. Pedunculata* described by Doctor Hooker and Mr. Arnold, in the works above-mentioned, I have not found in Ireland.

ORD. 68. CERATOPHYLLEÆ. *D C.* Hornwort Family.

Flowers monœcious. Calyx free, many-parted; the lobes equal. Petals none. Masc. Stamens 12—20, without filaments: anthers ovato-oblong, 2-celled, with two or three points at the apex, collected into the centre of the calyx. Fem. Ovary free, ovate, 1-celled: style filiform, incurved, oblique: stigma simple. Nut 1-celled, 1-seeded, apiculated with the persistent style, indehiscent. Seed pendulous. Albumen none. Embryo straight: radicle superior: cotyledons 4, whorled, alternately smaller, with a much divided plumule.—*Aquatic, submerged herbs, distinct as an Order but of very doubtful affinity; with whorled rather rigid leaves, cut into slender segments and somewhat serrated.*

1. CERATOPHYLLUM. *Linn.* Hornwort.

Barren fl. Calyx inferior, multipartite. *Corolla* none. *Stamens* 16—20. *Fertile fl. Calyx* multipartite. *Corolla* none. *Germen* one. *Style* filiform, curved. *Stigma* simple.

Nut superior, 1-seeded.—Name; *κερας, κερατος*, a ***horn***, from the spines of the fruit. *Monœcia. Polyandria.*

1. C. *demersum*, Linn. *Common Hornwort.* Fruit armed with two spines; segments of the calyx notched at the extremity. *Br. Fl.* 1. *p.* 405. *E. Fl. v.* iv. *p.* 141. *E. Bot. t.* 947.

In slow streams, ditches, and ponds. Pools near the bridge at Navan; *Doctor Scott.* Near Killaleagh, isle of Rathlin, and Lough Neagh; *Mr. Templeton. Fl.* July. ♃.—Floating. *Stem* long, slender. *Leaves* setaceous, whorled, two or three times forked, 2-celled. The foliage of this plant is often inflated and jointed, so as to look like a *Conferva. Hooker.*

2. C. *submersum*, Linn. *Unarmed Hornwort.* Fruit destitute of spines; segments of the calyx acute, entire. *Br. Fl.* 1. *p.* 405. *E. Fl. v.* iv. *p.* 142. *E. Bot. t.* 679.

Lake near Ballynahinch, County of Down, 1808, in company with Mr. Templeton. *Fl.* Sept. ♃.—Scarcely different from the preceding, but in the absence of spines on the fruit.

ORD. 69. ULMACEÆ. *Mirb.* Elm Family.

Flowers perfect, or polygamous, often clustered. Perianth free, monophyllous, campanulate, divided. Stamens definite, inserted into the base of the perianth, straight in æstivation. Ovary free, 2-celled: ovules solitary, pendulous; stigmas two, distinct. Fruit 1—2-celled, indehiscent, membranous or drupaceous. Seed solitary, pendulous. Albumen little or none. Embryo straight; cotyledons foliaceous; radicle superior.—***Trees or shrubs of the colder or temperate parts of the northern hemisphere, with scabrous, alternate, simple, deciduous leaves and stipules.***

1. ULMUS. *Linn.* Elm.

Perianth single, superior, persistent, 4—5-cleft. ***Capsule*** compressed, winged all round, (a *Samara*); 1-seeded.—Name, according to Theis, from the Anglo-Saxon *Elm. Ulm* is, however, still the German word for this tree. *Pentandria. Digynia.*

1. U. *campestris*, Linn. *Common English Elm.* Leaves rhomboid-ovate, acuminate, wedge-shaped and oblique at the base, always scabrous above, doubly and irregularly serrated, downy beneath, serratures incurved; branches wiry, slightly corky, when young bright brown, pubescent; fruit oblong, deeply cloven and naked. *Lindl. Syn. p.* 226. *Br. Fl.* 1. *p.* 140. *E. Fl. v.* ii. *p.* 20. *E. Bot. t.* 1886.

In hedge-rows and woods, abundant, but scarcely indigenous. *Fl.*

March, April. ♄.—A large *tree*, with rugged *bark*. *Flowers* in dense heads, each subtended by a small scale or bractea. This yields the best wood of all the *Elms*. The bored trunks were formerly in great demand for conveying water through Dublin and other large cities, before the introduction of metal pipes, and is still much used in carpentary work. It forms the best tree when grafted on seedling plants of the broad-leaved Wych Elm, (*U. montana,*) when it is also less liable to be blown down by high winds. The Hertfordshire Elm is supposed by Mr. Lindley to be a variety of *U. campestris*.

2. U. *suberosa*, Ehrh. *Cork-barked Elm*. Leaves nearly orbicular, acute, obliquely cordate at the base, sharply, regularly, and doubly serrated, always scabrous above, pubescent below, chiefly hairy on the axils; branches spreading, bright-brown, winged with corky excrescences; when young very hairy; fruit nearly round, deeply cloven, naked. *Lindl. Syn. p.* 226. *Br. Fl.* 1. *p.* 140. *E. Fl. v.* ii. *p.* 21.

Hedges and woods, but probably introduced. *Fl.* March. ♄.—Remarkable for the cork-like covering to the branches, which is full of deep fissures.

3. U. *glabra*, Mill. *Smooth-leaved Elm*. Leaves ovato-lanceolate, acuminate, doubly and evenly crenato-serrate, cuneate and oblique at the base, becoming quite smooth above, smooth or glandular beneath, with a few hairs in the axils; branches bright-brown, wiry, weeping; fruit obovate, naked, deeply cloven. *Lindl. Syn. p.* 226. *E. Fl. v.* ii. *p.* 23. *E. Bot. t.* 2248.

I have observed this growing in woods at Collon, and at Glyde Farm near Ardee, where it is known by the name of the *Feathered Elm*. It forms a very graceful tree, with its tall stem, and drooping branches. To this species Mr. Lindley thinks the Downton Elm and Scampston Elm of the nurseries may probably belong. The vars. β. and γ. of Lyndl. I have not observed in Ireland. *Fl.* March. ♄.

4. U. *montana*, Bauh. *Broad-leaved, or Wych Elm*. Leaves obovate, cuspidate, doubly and coarsely serrated, cuneate, and nearly equal at the base, always exceedingly scabrous above, evenly downy beneath; branches not corky, cinereous, smooth; fruit rhomboid-oblong, scarcely cloven, naked. *Lindl. Syn. p.* 227. *Br. Fl.* 1. *p.* 142. *E. Fl. v.* ii. *p.* 22. *E. Bot. t.* 1887.—*U. campestris, Willd.*

Woods and hedges in more elevated situations than any of the preceding, and is probably the only species that can be considered truly indigenous. *Fl.* March, April. ♄.—Distinguished at first sight by its large spreading branches and broad leaves, appearing just as the "hop-like fruit" comes to perfection. A variety is called the Weeping Elm, another var. the Giant Elm, and Mr. Lindley says the Chichester Elm also belongs to this species. This last var. as well as the common Wych Elm, forms a quick screen for protecting other more delicate trees in exposed situations.

ORD. 70. AMENTACEÆ. *Juss.* Amentaceous Family.

Flowers diœcious, monœcious, or rarely perfect. Barren flowers capitate, or amentaceous, subtended with a scale or scale-like perianth. Stamens inserted upon the scale, almost always monadelphous; anthers 2-celled. Fertile flowers fascicled, solitary or in close catkins, subtended by a scale. Ovary free, simple or rarely compound. Stigmas several. Fruits as many as there are ovules, bony or membranaceous. Albumen none or thin. Embryo straight or curved, plane; radicle generally superior.—*Trees or shrubs, with mostly deciduous leaves, the younger ones with two stipules at the base.*

§ 1. *Betulineæ.* Richard.

[illegible] 1. II 2 [illegible]

Fruit indehiscent, membranous, 2-celled, with solitary ovules. Seeds pedulous, naked.—Trees or shrubs, with leaves having their venæ primariæ running straight from the midrib to the margin.

1. BETULA. *Linn.* Birch.

Barren fl. in a cylindrical *catkin*, its scales 3-flowered. *Perianth* none. *Stamens* 10—12. *Fertile fl.* *Scale* of the *catkin* imperfectly 3-lobed, 3-flowered. *Perianth* none. *Styles* two. *Germen* compressed, with two cells, one of which is abortive. *Nuts* compressed, with a membranaceous margin, 1-seeded.—Name, derived from *betu*, the Celtic name for the birch. *Monœcia. Polyandria.*

1. B. *alba*, Linn. *Common Birch.* Leaves ovato-deltoid, acute, doubly serrated, glabrous. *Br. Fl.* 1. *p.* 409. *E. Fl. v.* iv. *p.* 153. *E. Bot. t.* 2198.

Woods, especially in heathy soil in mountainous countries. *Fl.* April, May. ♄.—The Weeping Birch, or Pearl Birch, although considered by some authors a distinct species, appears to be only a variety of this, and may be readily distinguished in its young state by its pearly or warty shoots, and when it acquires a considerable age by its pendulous branches.—The birch is one of the most hardy of *trees.* The wood, which is tough and white, is employed for various purposes. Much of it, and also the wood of the Alder, is burned into charcoal for the manufacture of gunpowder and other purposes, and brooms are made of its tops. The oil obtained from the "*white rind*" is said to be used in tanning the well-known *Russian leather.* A wine is made of its sap in Scotland.

2. ALNUS. *Tourn.* Alder.

Flowers collected into imbricated *catkins.*—*Barren fl.* *Scale* of the *catkin* 3-lobed, with three *flowers*. *Perianth* single, 4-parted. *Fertile fl.* *Scale* of the *catkin* subtrifid, with two *flowers*. *Perianth* none. *Styles* two. *Nut* compressed.—Name derived from the Celtic *al*, *near*, and *lan*, the *river-bank*. *Monœcia.* *Tetrandria.*

1. A. *glutinosa*, Gært. *Common Alder.* Leaves roundish, cuneiform, obtuse, lobed at the margin and serrated, somewhat glutinous, downy in the axils of the nerves beneath. *Br. Fl.* 1. *p.* 402. *E. Fl. v.* iv. *p.* 131.—*Betula Alnus, Linn.* *E. Bot. t.* 1508.

Wet meadows and banks of rivers. *Fl.* March, April. ♄.—A well known tree, whose wood is used for various purposes, and is particularly valuable for the piles of bridges, as it remains under water, undecayed, for a considerable length of time. *Sterile catkins* long, large, and cylindrical, pendant, their *footstalks* branched. *Fertile catkins* small, ovate, with deep scales.

§ 2. *Salicineæ.* Richard.

Fruit 2-valved, 1-celled, many-seeded. Seeds pendulous, comose.—Trees or shrubs, with leaves having their venæ primariæ ramifying within the margin, and forming venæ arcuatæ.

3. SALIX. *Linn.* Willow, Sallow and Osier.

Barren fl. *Scales* of the *catkin* single-flowered, imbricated with a nectariferous gland. *Perianth* none. *Stamens* 1—5.—*Fertile fl.* *Scales* of the *catkin* single-flowered, imbricated with a nectariferous *gland*. *Perianth* none. *Stigmas* two, often cleft. *Capsule* 1-celled, 2-valved, many-seeded. *Seeds* comose.—Name; *sal*, *near*, and *lis*, *water*, in Celtic: denoting a tree which grows near water. *Diœcia.* *Diandria.*

* Monandræ. *Borr.* *Filament one, with a double, or, in* S. rubra, *forked upwards, and bearing two anthers. Trees of low stature, or shrubs, with twiggy branches, and more or less lanceolate and serrated leaves often broader upwards. Catkins very compact.*

1. S. *purpurea*, Linn. *Bitter purple Willow.* Monandrous, decumbent; leaves lanceolate, broadest upwards, attenuated below, serrated, glabrous; germens ovate, very pubescent, sessile; stigma ovate, nearly sessile. *Br. Fl.* 1. *p.* 413. *E. Fl. v.* iv. *p.* 187. *E. Bot. t.* 1388. *Salict Wob. p.* 1. *t.* 1.

In wet grounds and hedges in the northern counties. About Newtownards, and between Stewartstown and Moneymore; *Mr. Templeton.* Ditch-bank near Garvagh, county of Derry; *Mr. D. Moore.* *Fl.* March. ♄.—A small shrub with purple, somewhat trailing *branches*. *Leaves* glaucous, especially beneath. Fertile *catkins* singularly compact. This is, according to Sir J. E. Smith, a valuable osier for basket work, and for plaiting into low close fences, its bark being so intensely bitter, that hares or rabbits will not touch it.

2. S. *Helix*, Linn. *Rose Willow.* Monandrous, erect; leaves lanceolate, broadest upwards, attenuated below, serrated, glabrous; germens oblongo-ovate, very pubescent, sessile; style short; stigmas almost linear, emarginate. *Br. Fl.* 1. *p.* 413. *E. Fl. v.* iv. *p.* 188. *E. Bot. t.* 1343. *Salict. Wob. p.* 3. *t.* 2.

Marshy grounds, &c. Near Carrigaline, County of Cork; *Mr. J. Drummond.* On the dry sandy beach by the sea-side near the mouth of the Killery, County of Mayo, and hedges near Florencecourt, County of Fermanagh. County of Derry; *Mr. D. Moore. Fl.* March, April. ♄.—When cultivated, forming a small tree about ten feet high, smooth in every part, altogether of a lighter hue than the last; the branches are not trailing, but upright, smooth and polished, of a pale yellow, or purplish ash-colour, tough and pliable, less slender and elongated than the foregoing. *Leaves* light, rather glaucous green, turning black in drying. Frequently used for tying fruit trees.

3. S. *Lambertiana*, Sm. *Boyton Willow.* Leaves obovato-lanceolate, acute, serrated, smooth; stipules none; stigmas very short, ovate, notched. *Sm.*—*Br. Fl.* 1. *p.* 413. *E. Fl. v.* iv. *p.* 190. *E. Bot. t.* 1359. *Salict. Wob. p.* 5. *t.* 3.

By the side of the Bann, and other places near Coleraine; *Mr. D. Moore.* Nearly allied to the last, but distinguishable by the broader and rather short leaves, which are dilated above the middle. It is, as well as the last, an excellent basket osier, the shoots being tough and pliant. *Fl.* April. ♄.

4. S. *Forbyana*, Sm. *Fine Basket Osier.* Monandrous, erect; leaves with small downy stipules, lanceolato-oblong, serrated, glabrous; style equal in length to the linear divided stigmas. *Br. Fl.* 1. *p.* 414. *E. Fl. v.* iv. *p.* 191. *E. Bot. t.* 1344. *Salict. Wob. p.* 9. *t.* 5.

Glendermot, near Derry; *Mr. D. Moore. Fl.* April. ♄.—*Stems* yellowish-green, glossy. Allied to *S. Helix*, but differing widely in the foliage and much greater length of its twigs. Much esteemed by basket-makers for the fine sorts of wicker-work.

5. S. *rubra*, Huds. *Green-leaved Osier.* Stamens two, combined at the base; leaves linear-lanceolate, broader in the fertile plant, acuminated, serrated, glabrous, green on both sides; capsules oblongo-ovate, very pubescent, sessile; style elongated; stigmas linear, undivided. *Br. Fl.* 1. *p.* 414. *E. Fl. v.* iv. *p.* 191. *E. Bot. t.* 1145. *Salict. Wob. p.* 11. *t.* 6.

In hedges about Stewartstown, Newtownards, and Moneymore; *Mr. Templeton*, By the side of the Faughan-river, County of Derry; *Mr. D. Moore.* Near Fermoy; *Mr. Drummond. Fl.* March, Apr. ♄.—A small *tree*, with longer and more lanceolate leaves than any of the preceding species. *Branches* tough and pliant. One of the most valuable Osiers when cut down annually.

* * Triandræ. *Borr. Stamens three. Leaves lanceolate,*

approaching to ovate, with evident deciduous stipules, serrated, glabrous. Catkins lax. Germens stalked, mostly glabrous.—Most of the species constitute excellent Osiers, and become trees if left to themselves.

6. S. *lanceolata*, Sm. *Sharp-leaved Triandrous Willow.* Leaves lanceolate, serrated, smooth; tapering towards each end; footstalks decurrent; germens stalked, ovate, smooth; style as long as the stigmas. *E. Fl. v.* iv. *p.* 168. *E. Bot. t.* 1436. *Salict. Wob. p.* 27. *t.* 14.

Hedges between Coleraine and Magilligan, 1833, where it has subsequently been found by Mr. D. Moore. *Fl.* April, May. ♄.—It is said to be cultivated and cut down annually for the use of basket-makers, the rods serving for brown hampers, crates, &c. The *leaves* are truly lanceolate, and not at all undulated. The true *S. undulata*, which I received twelve years ago from Mr. M'Nab of the Edinburgh Botanic Garden, who had it from Germany, is, as Mr. Forbes observes, a totally different plant, with linear-lanceolate undulated leaves.

7. S. *triandra*, Linn. *Long-leaved Triandrous Willow.* Triandrous; leaves oblongo-lanceolate, acute, serrated, glabrous; germens stalked, oblongo-ovate, glabrous, as well as the retuse scale; stigmas sessile, retuse. *Br. Fl.* 1. *p.* 415. *E. Fl. v.* iv. *p.* 166. *E. Bot. t.* 1435. *Salict. Wob. p.* 29. *t.* 15.

Wet woods and hedge-rows at Florencecourt, County of Fermanagh. *Fl.* May—Aug. ♄.—Becoming a tall *tree*, twenty feet high and upwards, if left to itself, casting its bark in the autumn. It is said to be much cultivated in osier-grounds, and reckoned among the most valuable of the Osiers.

8. S. *amygdalina*, Linn. *Almond-leaved Willow.* Triandrous; leaves oblongo-ovate, acute, rounded at the base, serrated, glabrous; germens much stalked, ovate, glabrous; stigmas sessile, bifid; young branches furrowed. *Br. Fl.* 1. *p.* 416. *E. Fl. v.* iv. *p.* 169. *E. Bot. t.* 1936. *Salict. Wob. p.* 35. *t.* 18.

Banks of rivers and ditches. River-side near Castle-Hyde, County of Cork; *Mr. J. Drummond.* By the side of the Bann at Fairhead, among rocks; *Mr. Templeton. Fl.* April, May. ♄.—A low *tree*, with much furrowed, yellowish young *branches. Stipules* deciduous, serrated, glabrous.

* * * Pentandræ. *Borr. Stamens more than three, usually five. Moderately sized trees, with ample, glossy, fragrant foliage, exuding a resin from the glandular serratures of the leaves. Stamens, in each catkin, so numerous and long as to render the flowers, which too are in perfection at the same time with the foliage, quite handsome, while the tree itself is the most ornamental of the whole genus. Germens glabrous.*

9. S. *pentandra*, Linn. *Bay-leaved Willow.* Stamens five;

leaves ovate, acuminate, crenate, glandular, glabrous; footstalks glandular at the summit; germens ovate, tapering, smooth, nearly sessile; style scarcely any; stigmas bifid. *Br. Fl.* 1. *p.* 416. *E. Fl. v.* iv. *p.* 171. *E. Bot. t.* 1805. *Salict. Wob. p.* 67. *t.* 34.

Banks of rivers and ditches. Natural woods near Blarney, County of Cork; *Mr. J. Drummond.* Common in the County of Derry; *Mr. D. Moore.* Ditch-banks at Florencecourt. *Fl.* May, June. ♄.—A *tree* eighteen or twenty feet high, with copious, large, shining leaves, which give it the appearance of an evergreen. *Sterile catkins* yellow, fragrant and handsome. The most ornamental of the larger *Willows.*

* * * * Fragiles. *Borr. Stamens two, (as in the following groups). Trees of considerable size, with lanceolate, glabrous, serrated, stipulated leaves, and very lax catkins, with elongated, more or less stalked, glabrous germens.*

11. α 10. S. *decipiens*, Hoffm. *White Welsh or varnished Willow.* **Leaves lanceolate, pointed, serrated, very glabrous; floral ones partly obovate and recurved; footstalks somewhat glandular; germens tapering, stalked, glabrous; style longer than the cloven stigmas; branches smooth, highly polished.** *Sm.*—*Br. Fl.* 1. *p.* 417. *E. Fl. v.* iv. *p.* 183. *E. Bot. t.* 1937. *Salict. Wob. p.* 57. *t.* 29.

Hedges near Newtownlimavady, and parish of Tamlaght; *Mr. D. Moore. Fl.* May. ♄.—My specimens have more completely lanceolate and narrower leaves than those represented in the figures in *E. Bot.* and *Salict Wob.*, with shorter foot-stalks, and more rounded stipules. I have not as yet seen the *catkins.*

β. 11. S. *fragilis*, Linn. *Crack Willow.* **Leaves ovato-lanceolate, acute, serrated, glabrous; germens ovate, glabrous; style short; stigmas bifid; scales pubescent and much ciliated.** *Br. Fl.* 1. *p.* 417. *E. Fl. v.* iv. *p.* 184. *E. Bot. t.* 1807. *Salict. Wob. p.* 58. *t.* 27.

Banks of rivers, and in marshy ground, frequent. *Fl.* April, May. ♄.—"A tall bushy *tree*, whose branches are not set on obliquely, somewhat crossing each other, not continued in a straight line, by which it may be readily distinguished in winter." *Sm.* These *branches* are fragile, especially in spring, and the wood is of little or no value — Whatever good qualities have been attributed to the present species, Sir J. E. Smith observes, belong to the following, which has often been mistaken for it.

γ. 12. S. *Russelliana*, Sm. *Bedford Willow.* **Leaves lanceolate, tapering at each extremity, strongly serrated, glabrous, very pale beneath; germens stalked, lanceolate, acuminate, glabrous; style as long as the bifid stigmas; scales narrow, lanceolate, slightly ciliated or pubescent.** *Br. Fl.* 1. *p.* 418. *E. Fl. v.* iv. *p.* 186. *E. Bot. t.* 1808. *Salict. Wob. p.* 55. *t.* 28, *and frontispiece (the tree).—S. fragilis, Woodville, and other medical writers. Hooker.*

Marshy woods. A cutting planted in the College Botanic Garden in 1808 has now a trunk seven feet and a half in circumference, and is thirty-six feet high. *Fl.* April, May. ♄.—"This extremely valuable *tree* was first brought into notice by the late Duke of Bedford, and hence most appropriately honoured by bearing his name. Of the size to which it reaches, some interesting details are given in the present Duke of Bedford's Introduction to the *Salictum Woburnense.* It was one of this species, and the favourite tree of Dr. Johnson at Litchfield, which was very recently destroyed by a hurricane, after it had attained a height of sixty feet, and a girth of thirteen feet. Another tree at Gordon Castle, Scotland, at the age of sixty-one years, was fifty-seven feet high, and above eleven feet in its greatest circumference. Great as is the affinity, botanically speaking, between this and the preceding, its properties are wholly different. So important is it as a plantation tree, that Mr. Lowe, in his survey of the County of Notts, states, that at eight years growth, the poles yielded a net profit of £214. per acre, and in two years longer they would probably have produced £300 per acre. The late George Biggen, Esq. of Cosgrove Priory, an able chemist, ascertained that the *bark* of this tree contains the tanning principle in a superior degree to that of the oak ; and it is supposed that medical properties stated to belong to *S. fragilis,* are attributed to it by mistake, and should be referred to the present. The *leaves* are of a peculiarly handsome shape, when in perfection, deeply serrated, and much attenuated." *Hooker.*

* 5. Albæ. *Borr. Trees of considerable elevation, having lanceolate serrated leaves, with long silky hairs beneath, especially in a young state, which give to the foliage a light or whitish hue. The serratures glandular. Catkins lax: germens glabrous.*

13. S. *alba,* Linn. *Common white Willow.* Leaves elliptical-lanceolate, regularly glanduloso-serrate, acute, silky beneath, often so above; germens ovato-acuminate, nearly sessile, glabrous; stigmas nearly sessile, short, recurved, bifid; scales short, pubescent at the margin. *Br. Fl.* 1. *p.* 418. *E. Fl. v.* iv. *p.* 231. *E. Bot. t.* 2430. *Salict. Wob. p.* 271. *t.* 136.

β. Under-side of the leaves less silky, often quite glabrous. *S. cœrulea, (blue Willow). E. Bot. t.* 2431. *Salict. Wob. p.* 273. *t.* 137.

River sides and woods, frequent. *Fl.* May. ♄. A well-known tree, attaining a large size, and of very rapid growth, more particularly the var. β., which is considered by many a distinct species ; and Mr. Forbes, who has paid much attention to this *genus,* observes, that the new *leaves,* after the wood has been cut, are of a larger size, and, as well as the twigs, of a darker hue than the *common var.* (the real *S. alba*). They seem to be alike valuable for their bark and timber, and are both amply deserving of cultivation. A tree of the var. β., planted when a cutting, in 1808, has now a tall trunk, measuring six feet eight inches in circumference at a foot from the ground, and it is nearly forty feet high. A variety occurs in various parts of the country, with red twigs, by which it may be readily known at all times of the year.

13 14. S. *vitellina*, Linn. *Yellow Willow or Golden Osier.* Leaves lanceolate, with glandular serratures, acuminate, more or less silky beneath, often so above; germens lanceolate, sessile, glabrous; style short; stigmas bipartite; scales lanceolate. *Br. Fl.* 1. *p.* 419. *E. Fl. v.* iv. *p.* 182. *E. Bot. t.* 2430. *Salict. Wob. p.* 39. *t.* 20.

Osier-grounds. By the side of the Faughan river, County of Derry; *Mr. D. Moore. Fl.* May. ♄. Remarkable for the bright yellow colour of its branches, and the leaves often partake of the same tint.—The twigs are much used for tying and packing trees, they being very tough.

* 6. Fuscæ. *Borr. Small shrubs, with generally procumbent stems and leaves between elliptical and lanceolate, mostly silky beneath, nearly entire. Catkins ovate or cylindrical. Germens silky stalked, The habit of S. fusca rather approaches the* Monandræ *group.*

15. S. *fusca*, Linn. *Dwarf silky Willow.* Leaves elliptical or elliptic-lanceolate, acute, entire, or with minute glandular serratures, somewhat downy, glaucous, and generally very silky beneath; germens upon a long stalk, lanceolate, very silky; stigmas bifid; stems more or less procumbent. *S. repens*, C. h *Hook. Scot.* 1. *p.* 284.

α. Stem much branched, upright, decumbent below; leaves elliptic-lanceolate. *S. fusca, E. Bot. t.* 1960. *E. Fl. v.* iv. *p.* 210. *Salict. Wob. p.* 165. *t.* 83.

β. Stem depressed, with short upright branches; leaves elliptic-lanceolate. *S. repens, E. Bot. t.* 183. *(with young leaves only). E. Fl. v.* iv. *p.* 209. *Salict. Wob. p.* 167. *t.* 84.

γ. Stem prostrate, with elongated straight branches; leaves elliptical-oblong. *S. prostrata, E. Bot. t.* 1959. *Salict. Wob. p.* 163. *t.* 82.

δ. Stem recumbent; leaves elliptical. *S. fetida, E. Fl. v.* iv. *p.* 208.—*S. adscendens, E. Bot. t.* 1962. *Salict. Wob. p.* 159. *t.* 80.—*subvar. leaves smaller. S. fetida, β. E. Fl. v.* iv. 208. *S. parviflora, E. Bot. t.* 1961. *Salict. Wob. p.* 161. *t.* 81.

ε. Stem procumbent, leaves elliptic-lanceolate. *S. incubacea, Linn. E. Fl. v.* iv. *p.* 212. *(excl. of all the other synonyms? Borr.) Borrer in E. Bot. Suppl. t.* 2600.

ζ. Stem spreading or erect; leaves elliptical, with a recurved point, very silvery beneath. *S. argentea, E. Bot. t.* 1364. *E. Fl. v.* iv. *p.* 207.

α. Heathy mountains, Cunnamara. Heaths near Skibbereen; *Mr. J. Drummond.* β. Mourne mountains; *Mr. Templeton.* Tittour, County of Wicklow; *John Nuttall, Esq.* γ. Cave Hill, near Belfast; *Mr. Templeton*, where I have gathered it. ε. Errigal banks, above Garvagh; *Mr. D. Moore*. ζ. Portmarnock sands, abundant. *Fl.* April, May. ♄.—I agree with Dr. Hooker, in considering all the foregoing species of authors as varieties of one species.

* 7. Glaucæ. *Borr. Small, erect, very closely allied shrubs; remarkable for their soft, hairy, and silky oblongo-lanceolate leaves, often white and cottony beneath. Germens sessile, very downy or silky.*

16. S. *Stuartiana*, Sm. *Small-leaved shaggy Willow.* Leaves nearly entire, ovato-lanceolate, acute, shaggy above, densely silky, somewhat cottony beneath; style as long as the almost sessile woolly germen; stigmas capillary, deeply divided, the length of the style. *Br. Fl.* 1. *p.* 422. *E. Fl. v.* iv. *p.* 203. *E. Bot. t.* 2588. *Salict. Wob. p.* 143. *t.* 72.—*S. lapponum*, *Walker.*

Shore of Lough Neagh, near Antrim; *Mr. Templeton*, the fertile plant only. The two other British species of this section are not found in Ireland. *Fl.* July, Aug. ♄.

* 8. Viminales. *Borr. Trees of a more or less considerable size, with long pliant branches and lanceolate leaves. Germens nearly sessile, hairy or silky; their styles elongated, their stigmas linear, mostly entire.*

17. S. *viminalis*, Linn. *Common Osier.* Leaves linear-lanceolate, obscurely crenate, white and silky beneath; stipules very small, sub-lanceolate; branches straight and twiggy; germens upon very short stalks, lanceolato-subulate; style elongated; stigmas long, linear, mostly entire. *Br. Fl.* 1. *p.* 423. *E. Fl. v.* iv. *p.* 228. *E. Bot. t.* 1898. *Salict. Wob. p.* 265. *t.* 133.

Ditch banks and Osier grounds, frequent. *Fl.* April, May. ♄.—This is much cultivated for basket work.

18. S. *stipularis*, Sm. *Auricled Osier.* Leaves lanceolate, very indistinctly crenate, white and downy beneath; stipules large, semi-cordate, acute, often with a tooth or lobe at the base; germens stalked, lanceolate, very downy; style elongated; stigmas linear, undivided; scales very shaggy. *Br. Fl.* 1. *p.* 423. *E. Fl. v.* iv. *p.* 230. *E. Bot. t.* 1214. *Salict. Wob. p.* 263. *t.* 132.

Hedges and woods, becoming a large tree when left undisturbed. *Fl.* March. ♄.—Allied to the preceding in *fructification;* differing in its larger and coarser *leaves*, less white beneath, and with large, very remarkable *stipules*. Although frequently found in Osier grounds, intermixed with the last, it is much inferior to it for any economical purpose.

19. S. *Smithiana*, Willd. *Silky-leaved Osier.* Leaves lanceolate, acuminate, obscurely crenate, white, and covered with sattiny pubescence beneath; stipules very small semicordate, acute; germens lanceolato-subulate, very silky, shortly stalked; style elongated; stigmas long, linear, mostly entire. *Br. Fl.* 1. *p.* 423. *E. Fl. v.* iv. *p.* 299. *Salict. Wob. p.* 367. *t.* 234.—*S. mollissima*, *E. Bot. t.* 1509.

By the side of the Mill-stream in Dawson Park, near Ball's-bridge, and various places in the county of Wicklow, particularly near Dunganstown. *Fl.* April, May. ♄.—A small tree, with lanceolate, acuminate *leaves*, green above, silky and very soft beneath. *Stipulæ* minute, curved, toothed, hairy. Of little use for economical purposes.

20. S. *acuminata*, Sm. *Long-leaved Osier.* Leaves lanceolato-oblong, pointed, wavy, finely toothed, glaucous and downy beneath; stipules half ovate, then kidney-shaped; catkins cylindrical; germen stalked, ovate, hairy; style as long as the undivided stigmas. *Br. Fl.* 1. *p.* 424. *E. Fl. v.* iv. *p.* 227. *E. Bot. t.* 1434. *Salict. Wob. p.* 261. *t.* 131.

Woods and bushy places near Cork; *Mr. Drummond.* Banks of the Laggan, near Belfast; *Mr. Templeton.* Hedges in the County of Wicklow, frequent. *Fl.* April. ♄. In its upright mode of growth, shape of its leaves, and general habit, it agrees much better with the three preceding than with any of the Sallow tribe in the next division, in which it has been placed by some authors. At Florencecourt, where I collected specimens in the autumn of 1833, it has become a tree of about twenty feet high, although growing in an elevated situation.

* 9. Cinereæ. *Borr. Trees or low shrubs, with downy branches and mostly obovate, grey, hoary, toothed, more or less wrinkled and stipuled leaves, very veiny beneath. Germens sericeo-tomentose.—This group is usually denominated the Sallows.*

21. S. *cinerea*, Linn. *Grey Sallow.* Leaves obovato-elliptical, sometimes approaching to lanceolate, more or less glaucous above, beneath pubescent and reticulated with veins, the margins slightly recurved; stipules semicordate; germens stalked, lanceolato-subulate, silky; style short; stigmas mostly entire. *Br. Fl.* 1. *p.* 424. *E. Fl. v.* iv. *p.* 215. *E. Bot. t.* 1897. *Salict. Wob. p.* 249. *t.* 125.

Banks of rivers and moist woods, abundant. *Fl.* April. ♄.—A tree of twenty or thirty feet high, of little use.

22. S. *aquatica*, Sm. *Water Sallow.* Stem and branches erect; leaves slightly serrated, obovato-elliptical, minutely downy, flat, rather glaucous beneath; stipules rounded, toothed; germens silky, stalked; stigmas nearly sessile. *Br. Fl.* 1. *p.* 425. *E. Fl. v.* iv. *p.* 218. *E. Bot. t.* 1437. *Salict. Wob. p.* 253. *t.* 157.

Wet hedge-rows and swampy places, woods, &c. frequent. *Fl.* April. ♄.

23. S. *oleifolia*, Sm. *Olive-leaved Sallow.* Stem erect, branches straight, spreading; leaves obovato-lanceolate, flat, rather rigid, minutely toothed, acute, glaucous, reticulated and finely hairy beneath; stipules small, notched, rounded; catkins oval, nearly half as broad as long. *Sm.—Br. Fl.* 1. *p.* 425. *E. Fl. v.* iv. *p.* 219. *E. Bot. t.* 1402. *Salict. Wob. p.* 251. *t.* 126.

In woods and hedges, frequent. Plentiful at the Dargle. *Fl.* March. ♄.—A small *tree*, nearly allied to *S. cinerea*, and by some Botanists considered only a variety of it.

24. S. *aurita*, Linn. *Round-eared Sallow.* Leaves obovate, repando-dentate, wrinkled with veins, more or less pubescent, very downy beneath, tipped with a small bent point, recurved at the margins; stipules roundish, semicordate; germens lanceolato-subulate, stalked, silky; style very short; stigmas generally entire. *Br. Fl.* 1. *p.* 425. *E. Fl. v.* iv. *p.* 216. *E. Bot. t.* 1487. *Salict. Wob. p.* 247. *t.* 124.

Upland pastures and moist banks, by the side of mount streams, &c. very common. *Fl.* April, May. ♄.—A shrub, generally from three to four feet high, with numerous straggling branches, remarkable for its conspicuous roundish, semicordate *stipules*. *Leaves* dark-green above, somewhat glaucous beneath, wrinkled.

25. S. *caprea*, Linn. *Great round-leaved Sallow.* Leaves ovato-elliptical, acute, serrated and waved at the margin, downy beneath; stipules semicordate; germens pedicellate, lanceolato-subulate, silky; stigmas sessile, undivided. *Br. Fl.* 1. *p.* 425. *E. Fl. v.* iv. *p.* 225. *E. Bot. t.* 1488. *Salict. Wob. p.* 243. *t.* 122.

Woods and hedges, common. ♄.—A moderate sized *tree*, with spreading, round, brown or purplish branches, with large broad *leaves*, very conspicuous in spring, when covered with its handsome yellow catkins before the *leaves* appear. The Highlanders are said to employ the *bark* in tanning leather, and to make various implements of the *wood*. The bark is also said to have been used with success instead of that from Peru. Mr. Fraser informs me that *S. caprea* is one of the best and hardiest species for protecting other plants near the sea.

* 10. Nigricantes. *Borr. A group as difficult to define as are the species which compose it. Many approach the last division very nearly, having more or less ovate or obovate leaves, but they are less wrinkled, and, when dry, generally become black, whatever care may be taken in the preservation of them. Shrubs with long branches, or small trees. Germens glabrous or silky, stalked. Style more or less bifid.*

26. S. *cotinifolia*, Sm. *Quince-leaved Sallow.* Leaves elliptical-orbicular, obsoletely toothed, slightly downy above,

more so, glaucous, and veiny beneath; germens stalked, lanceolato-acuminate; style bifid; stigmas roundish, notched. *Br. Fl.* 1. *p.* 426. *E. Fl. v.* iv. *p.* 220. *E. Bot. t.* 1403. *Salict. Wob. p.* 227. *t.* 114.

Woods and bushy places, near Cork, frequent; *Mr. J. Drummond.* Near Dunkerrin, County of Kerry; *Doctor Taylor. Fl.* April, May. ♄.—A low *shrub*, with leaves two or more inches long, shaped almost like those of the Gorden *Rhus Cotinus.*

27. S. *hirta*, Sm. *Hairy-branched Sallow.* "Stem erect; branches densely hairy; leaves elliptic heart-shaped, pointed, finely crenate, downy on both sides; stipules half heart-shaped, flat, toothed, nearly glabrous." *Sm.*—*E. Fl. v.* iv. *p.* 221. *E. Bot. t.* 1404. *Br. Fl.* 1. *p.* 426. *Salict. Wob. p.* 225. *t.* 113.

By the side of the river Roe, above Dungiven; *Mr. D. Moore,* who finds the fertile plant only. *Fl.* April, May. ♄.—A small *tree,* resembling the preceding, but with narrower leaves, heart-shaped at the base. The *style* is bifid, though only for a very short way, bearing capitate emarginate *stigmas.*

28. S. *rupestris*, Donn. *Silky Rock Sallow.* "Stem trailing; leaves obovate, acute, serrated, flat, even, silky on both sides; stipules hairy; branches minutely downy; germens stalked, awl-shaped, silky; style as long as the blunt undivided stigmas." *Sm.*—*Br. Fl.* 1. *p.* 427. *E. Fl. v.* iv. *p.* 222. *E. Bot. t.* 2342. *Salict. Wob. p.* 221. *t.* 111.

Rocks on a hill called Skerries, County of Antrim; *Mr. Templeton,* but I have not seen Irish specimens. *Fl.* May. ♄.

* 11. Bicolores. *Borr. Leaves glabrous, or nearly so, dark green above, very glaucous beneath, between obovate and lanceolate. Germens very silky.—Twiggy bushes.*

29. S. *laurina*, Sm. in Linn. Trans. *Shining dark-green Willow.* Leaves elliptic-oblong, acute, waved, and slightly serrated, nearly glabrous, glaucous beneath; footstalks dilated at the base; stipules pointed, serrated; scales obtuse, hairy, half as long as the densely downy, ovate, long stalked germens. *Sm.*—*Br. Fl.* 1. *p.* 428.—*S. bicolor. E. Bot. t.* 1806. *E. Fl. v.* iv. *p.* 178. *Salict. Wob. p.* 75. *t.* 38.

Road-side between Castle Dawson and Bellaghy, County of Derry; *Mr. D. Moore. Fl.* April, May. ♄.—*Branches* at first erect and wand-like, round, of a mahogany colour, beset with copious nearly upright leaves, and attaining the height of six feet. When neglected, becoming a small tree. This species is, according to Sir J. E. Smith, unfit for any economical use. The twigs are brittle, the leaves are large and handsome, and retain their green colour pretty well in drying.

30. S. *radicans*, Sm. *Tea-leaved Willow.* Leaves obovato- or elliptic-lanceolate, with often wavy serratures, glabrous,

glaucous beneath; germens lanceolate, stalked, very silky, as well as the scales; style elongated; stigmas entire or bifid. *Br. Fl.* 1. *p.* 428.—*S. phylicifolia, Linn. E. Fl. v.* iv. *p.* 173. *E. Bot. t.* 1958. *Salict. Wob. p.* 91. *t.* 46. 43.

Side of Enagh Lough, County of Derry; *Mr. D. Moore.* 1834. *Fl.* May. ♄.—A low, spreading, smooth bush, whose long, recumbent, brown or purplish *branches* take root as they extend in every direction. *Leaves* on shortish footstalks, not much spreading, about two inches long, not one broad; very acute at the point; not at all rounded at the base; smooth at all times, except an obscure downiness on the midrib above; harsh to the touch, bitter, variously crenated or serrated, the serratures peculiarly, and sometimes remarkably undulated; the upper side of a dark shining green; under glaucous. I have not as yet seen the catkins of Irish specimens.

31. S. *bicolor*, Ehrh. *Two-coloured Willow.* Leaves elliptical, green and shining above, glabrous and glaucous beneath, serrated, with oblique points; stipules crescent-shaped, serrated; barren catkins copious, bright yellow; filaments slightly bearded at the base. *Forbes.—Br. Fl.* 1. *p.* 430.—*S. tenuifolia, E. Bot. t.* 2186. *(as to figure, not Fl. Br.) Borr.—S. floribunda, Forbes in Salict. Wob. p.* 107. *t.* 54. *Hooker.—S. tenuifolia, Drummond's Cat. of Plants in the Co. of Cork.* phylicifolia (

Near Carrigaline, County of Cork; *Mr. J. Drummond.* I insert this species on Mr. Drummond's authority, not having seen Irish specimens: further observations must decide whether he meant *S. tenuifolia* of *Fl. Br.* or the present plant. *Fl.* April, and again in July. *(Forbes.)* ♄.

* 12. Herbaceæ. *Borr. Minute shrub; remarkable for its small, few-flowered catkins.*

32. S. *herbacea*, Linn. *Least Willow.* Leaves orbicular, serrated, glabrous, shining, veined; germens sessile, lanceolate, glabrous; style and stigmas bifid; catkins of few flowers. *Br. Fl.* 1. *p.* 432. *E. Fl. v.* iv. *p.* 200. *E. Bot. t.* 1907. *Salict. Wob. p.* 123. *t.* 62.

Summits of Tomlagee and Lugnaquilla, the two highest of the Wicklow mountains, and Slieve Donard, County of Down. An unusually large variety was found by Mr. Templeton on the top of Slieve-Nance, County of Antrim, similar to some of the large varieties gathered by Mr. M'Nab, of Edinburgh, on the mountains of Sutherland. *Fl.* June. ♄.—The least of our native Willows. Mr. Moore has lately sent me very luxuriant specimens from Dart-mountain, County of Derry.

4. Populus. *Linn.* Poplar.

Barren fl. Scales of the *catkins* jagged. *Anthers* 8—30, arising from a turbinate, oblique, entire, single *perianth. Fertile fl. Scales* of the *catkin* jagged. *Perianth* turbinate. *Stigmas* four or eight. *Capsules* superior, 2-celled, 2-valved, many-seeded. *Seeds* comose.—Name, *populus, or the tree of* *the people*, as it was esteemed to be in the time of the Romans and of the French revolution.

Diœcia. Octandria.

1. P. *alba*, Linn. *Great White Poplar or Abele.* Leaves roundish, cordate, lobed, toothed, glabrous above, downy and very white beneath; fertile catkins ovate; stigmas four. *Br. Fl.* 1. *p.* 436. *E. Fl. v.* iv. *p.* 243. *E. Bot. t.* 1618.

Natural woods near Blarney, County of Cork; *Mr. J. Drummond. Fl.* April. ♄.—A large *tree*, with smooth bark and spreading *branches;* of very rapid growth. The *wood* is white and soft, and used only for coarse purposes.

2. P. *tremula*, Linn. *Aspen.* Leaves nearly orbicular, broadly toothed, glabrous on both sides; stalks compressed; stigmas four, erect, auricled at the base. *Br. Fl.* 1. *p.* 437. *E. Fl. v.* iv. *p.* 244. *E. Bot. t.* 1809.

Kelly's Glen, County of Dublin. Agnew's Hill, and other places in the counties of Antrim and Derry; *Mr. Templeton* and *Mr. D. Moore.* Blarney woods; *Mr. J. Drummond. Fl.* March, April. ♄.—This *tree* is well known by the tremulous movement of its leaves with the slightest breath of wind. The motion is aided by the compression of the stalk.

3. P. *nigra*, Linn. *Black Poplar.* Leaves deltoid, acute, serrated, glabrous on both sides; fertile catkins cylindrical, lax; stigmas four. *Br. Fl.* 1. *p.* 437. *E. Fl. v.* iv. *p.* 245. *E. Bot. t.* 1910.

Common in plantations, scarcely indigenous. *Fl.* April. ♄.—A large *tree* of quick growth, having a light wood of little value, as is the case with most trees that come soon to perfection.

§ 3. *Cupuliferæ.* Richard. [illegible] Quercin. &c. Corylac. Mirb.

Flowers monœcious. Barren ones amentaceous. Stamens 5—20, inserted into the centre of the scales of the perianth, generally distinct. FERTILE FL. aggregate or amentaceous. Perianth adnate with the ovary, with a small toothed limb, and with a coriaceous involucre (cupule) at the base, variously formed. Ovary with two or several cells and several ovules, the greater number of which are abortive: stigmas several, nearly sessile, distinct. Pericarp *(glands)* bony or coriaceous, 1-celled, more or less enclosed in the enlarged involucre. Seed solitary or 2—3, pendulous, without albumen. Embryo large, with plano-convex, fleshy cotyledons, and a minute superior radicle.

1. FAGUS. *Linn.* Beech.

Barren fl. in a globose *catkin*. *Perianth* single, of one leaf, campanulate, 6-cleft. *Stamens* 5—12. *Fertile fl.* two, within a four lobed prickly *involucre*. *Perianth* single, urceolate, with 4—5 minute lobes. *Germens* incorporated with the perianth, 3-celled, two becoming abortive. *Styles* three. *Nuts* 1-seeded, invested with the enlarged involucre.—Name; *φαγος*, in Greek, from *φαγω*, *to eat*, on account of the nutritive qualities of the fruit. *Monœcia. Polyandria.*

1. F. *sylvatica*, Linn. *Beech-tree.* Leaves ovate, glabrous, obsoletely dentate, their margins ciliated. *Br. Fl.* 1. *p.* 408. *E. Fl. v.* iv. *p.* 152. *E. Bot. t.* 1846.

Woods, scarcely indigenous. *Fl.* April, May. ♄.—The tree bears clipping or scutching very well, and is frequently used for hedges, where shelter is the object, and then retains the leaves throughout the winter. The *wood* is employed for various purposes, by carpenters, turners, and wheelwrights. Swine feed upon the *seeds* or *masts.*

2. CASTANEA. *Tourn.* Chesnut.

Barren fl. in a very long cylindrical *catkin*. *Perianth* single, of one leaf, 6-cleft. *Stamens* 5—20. *Fertile fl.* three, within a 4-lobed, thickly muricated *involucre*. *Perianth* single, urceolate, 5—6 lobed, having the rudiments of twelve *stamens*. *Germen* incorporated with the perianth, 6-celled, each cell 2-seeded, five of the cells mostly abortive. *Styles* six. *Nut* 1—2-seeded, invested with the enlarged *involucre*.—Named from *Castanea* in Thessaly, which produced magnificent *Chesnut* trees. *Monœcia. Polyandria.*

1. C. *vulgaris*, Lam. *Spanish Chesnut.* Leaves oblongo-lanceolate, acuminate, mucronato-serrate, glabrous on each side. *Br. Fl.* 1. *p.* 408.—*Fagus castanea, Linn.*—*E. Fl. v.* iv. *p.* 151. *E. Bot. t.* 886.

Woods and Parks, but not indigenous. *Fl.* May. ♄.—This fine tree is much cultivated, both for ornament and its valuable timber. Full grown specimens may be seen at Shelton Abbey, and other places in the County of Wicklow. The Chesnut ripens its fruit, near Dublin, late in autumn.

3. QUERCUS. *Linn.* Oak.

Barren fl. in a lax *catkin* or *spike*. *Perianth* single, 5—7-cleft. *Stamens* 5—10. *Fertile fl.* *Involucre* of many little scales, united into a *cup*. *Perianth* single, closely investing the germen, 6-toothed. *Germen* 3-celled. *Style* one. *Stigmas* three. *Nut* (or *acorn*) 1-celled, 1-seeded, covered by the persistent, enlarged perianth, and surrounded at the base by the enlarged cup-shaped involucre.—Named from the *Celtic quer*, *beautiful*, and *cuez*, a *tree*. It produced the Misseltoe of the *Druids*, and was thence also called *drew;* hence *δρυς*, in Greek, and *Dryades*. *Monœcia. Polyandria.*

1. Q. *Robur*, Linn. *Common British Oak.* Leaves deci-

duous, shortly stalked, oblongo-obovate, deeply sinuate, their sinuses rather acute, lobes obtuse; fruits two to three, upon a long peduncle. *Br. Fl.* 1. *p.* 407. *E. Fl. v.* iv. *p.* 149. *E. Bot. t.* 1342.—*Q. pedunculata, Willd. and foreign authors.*—*Q. racemosa, Lam.*

Woods. *Fl.* April, May. ♄.—The uses of this valuable tree are well known. It may be readily distinguished from the following species by its smoother and more even stem, and slower growth, when growing together, as well as by the pedunculated *catkin.* The word *Robur,* Doctor Hooker remarks, is derived from *rove,* another Celtic word for the *oak:* whence arises *robur, strength,* in Latin.

2. Q. *sessiliflora,* Salisb. *Sessile-fruited Oak.* Leaves deciduous, on long stalks, oblongo-obovate, deeply sinuate, their sinuses rather acute, lobes obtuse; fruits clustered upon a very short stalk, or sessile. *Br. Fl.* 1. *p.* 408. *E. Fl. v.* iv. *p.* 150. *E. Bot. t.* 1845.—*Q. Robur, Willd. and most of the foreign authors.*

Woods, often intermixed with the last. *Fl.* April, May. ♄.—The specific name, as Doctor Hooker observes, is calculated to mislead. The *flowers* are sessile upon the peduncle in both species; but here the peduncle is very short, or almost wanting: in *Q. Robur* it is much elongated.—The wood of the present species is said to be much inferior to the last: although Doctor Hooker states that an eminent modern author has lately expressed his opinion that it is the *Q. sessiliflora* which yields the best timber for ship-building.

4. CORYLUS. *Linn.* Hasel-nut.

Barren fl. in a cylindrical *catkin;* its scales 3-cleft. *Perianth* none. *Stamens* eight. *Anthers* 1-celled. *Fertile fl. Perianth* obsolete. *Germens* several, surrounded by a scaly involucre. *Stigmas* two. *Nut* 1-seeded, invested at the base by the enlarged, united, coriaceous scales of the involucre.—Name; κορυς, a *casque* or *cap:* the fruit, with its involucre, appearing as if covered with a bonnet.

Monœcia. Polyandria.

1. C. *Avellana,* Linn. *Common Hasel-nut.* Stipules oblong, obtuse; leaves roundish, cordate, pointed; involucre of the fruit campanulate, rather spreading, torn at the margin. *Br. Fl.* 1. *p.* 410. *E. Fl. v.* iv. *p.* 157. *E. Bot. t.* 723.

Hedges and copses, abundant. *Fl.* March. ♄.—The wood of the Hasel is used for a number of domestic and agricultural purposes, and makes an excellent charcoal for drawing. The nuts are well known at our tables.

5. CARPINUS. *Linn.* Hornbeam.

Barren fl. in a cylindrical *catkin;* its scales roundish, ciliated at the base. *Stam.* 8—20. *Fertile fl.* in a lax *catkin;* its scales large, folinceous, 3-lobed, 1-flowered. *Involucre* none. *Perianth* of 1 leaf, urceolate, 6-dentate, incorporated with the 2-celled *germen*, of which 1 cell is abortive. *Styles* 2. *Nut* ovate, striated, 1-seeded.—Name; *car*, *wood*, and *pin*, a *head*, in Celtic: wood employed to make the yokes of oxen.

Monœcia. Polyandria.

1. C. *Betulus*, Linn. *Hornbeam.* Scales or bracteas of the fruit oblong, serrated, with two smaller lateral lobes. *Br. Fl.* 1. *p.* 410. *E. Fl. v.* iv. *p.* 156. *E. Bot. t.* 2032.

Woods and hedges. *Fl.* May. ♄.—Fine specimens of this tree may be seen at Woodlands, near Lucan. It was formerly a good deal used for hedges.—*Leaves* ovate or subcordate, doubly-serrated, acute, the veins somewhat hairy, beautifully plaited when young. The wood of the Hornbeam is white, tough and hard. It is used in turning-work, for implements of husbandry, cogs of wheels. &c. The inner bark is said to yield a yellow dye.

ORD. 71. MYRICEÆ. *Rich.* Gale Family.

amentac. vj.

Flowers separated, amentaceous. BARREN FL. Stamens one or several, each with a hypogynous scale. Anthers 2—4-celled, opening lengthwise.—FERTILE FL. Ovary 1-celled, surrounded by several hypogynous scales: ovule solitary, erect, with a foramen in the apex: stigmas two, subulate. Fruit often covered with waxy secretions, drupaceous, formed of the hypogynous scales of the ovary, become fleshy and adherent, or dry and dehiscent, with the scales distinct. Seed solitary, erect. Embryo without albumen; cotyledons plano-convex; radicle short, superior.—*Shrubs with resinous glands and dots. Leaves alternate, simple.*

1. MYRICA. *Linn.* Gale.

Barren fl. Scales of the *catkin* concave. *Perianth* none.—*Fertile fl. Scales* of the *catkin* concave. *Perianth* none. *Styles* two. *Drupe* 1-celled, 1-seeded.—Name, μυρικη, in Greek, synonymous with the *Tamarix.*

Diœcia. Tetrandria.

1. M. *Gale*, Linn. *Sweet Gale or Dutch Myrtle.* Leaves lanceolate, broader upwards, serrated; stem shrubby. *Br. Fl.* 1. *p.* 435. *E. Fl. v.* iv. *p.* 239. *E. Bot. t.* 562.

Bogs and moory ground, abundant. *Fl.* May. ♄.—The *plant* diffuses an agreeable smell, and the *leaves* have a bitter taste; hence they are said to have been sometimes used in place of hops. Doctor Hooker states that in Isla and Jura the inhabitants scent their clothes with them, and that in many parts of Scotland, beds are made of the twigs.

ORD. 72. CONIFERÆ. *Juss.* Fir Family.

Flowers monœcious or diœcious. STERILE FL. monandrous or monadelphous; each floret consisting of a single stamen, or of a few united, collected in a deciduous catkin about a common rachis. Anthers 2- or many-lobed, bursting outwardly; often terminated by a crest, which is an unconverted portion of the scale out of which each stamen is formed: pollen large, usually compound.—FERTILE FL. generally in cones, sometimes solitary. Ovary in the cones, spread open, and having the appearance of a flat scale destitute of style or stigma, and arising from the axil of a membranous bractea; in the solitary flower apparently wanting. Ovules naked; in the cones in pairs on the face of the ovary, having an inverted position, and consisting of one or two membranes open at the apex, and of a nucleus, in the solitary flower erect. Fruit consisting either of a solitary naked seed, or of a cone; the latter, formed of the scale-shaped ovaries, become enlarged and indurated, and occasionally of the bracteas also, which are sometimes obliterated, and sometimes extend beyond the scales in the form of a lobed appendage. Seeds with a hard crustaceous integument. Embryo in the midst of a fleshy and oily albumen, with two or many opposite cotyledons: the radicle next the apex of the seed, and having an organic connexion with the albumen. —*Resinous trees or shrubs. Leaves linear, acerose or lanceolate, rigid, entire at the margins or dilated and lobed, always with parallel veins, sometimes fascicled and sheathing at the base.*

1. PINUS. *Linn.* Fir.

Barren fl. in crowded, racemose *catkins;* the scales peltate, bearing two 1-celled, sessile *anthers. Perianth* none. *Fertile fl.* in an ovate *catkin;* its scales closely imbricated, 2-flowered. *Perianth* none. *Pericarp* 1-seeded, terminated by a long winged appendage, and covered with the imbricated scales, forming a *cone (strobilus).*—Name; *pin* or *pen,* means *a crag* or stony mountain, still so called in Wales: (as *Ben* in Scotland): where the *pine* delights to grow, "moored in the rifted rock." *Hooker.*

Monœcia. Monadelphia.

1. P. *sylvestris,* Linn. *Scotch Fir.* Leaves in pairs, rigid; cones conico-ovate, acute, young ones stalked, recurved, as long as the leaves, generally in pairs; crest of the anthers very

small. *Br. Fl.* 1. *p.* 411. *E. Fl. v.* iv. *p.* 158. *E. Bot. t.* 2460.

Now almost, if not entirely extinct, in a wild state. *Fl.* May, June. ♄.—This *tree* appears to have been abundant in Ireland, as trunks of very large dimensions are often found in bogs, sufficiently fresh for roofing houses, and found to be very durable. A section of a trunk was lately sent me from the Queen's County by the Rev. Doctor Vignoles, that had been lately dug out of a bog, whose diameter is two feet eight inches, indicating by its circles or rings of wood about eighty years' growth. The resinous roots are sold in Dublin as firewood, and are used by the peasantry in the west of Ireland in lieu of candles.

2. JUNIPERUS. *Linn.* Juniper.

Barren fl. Scales of the *catkin* subpeltate. *Perianth* none. *Stamens* 4—8, 1-celled. *Fertile fl. Scales* of the catkin few, united, at length fleshy and surrounding the 3-seeded berry. —Name, *jeneprus,* in Celtic, *rude, rough,* as is the plant itself. *Diœcia. Monadelphia.*

1. J. *communis,* Linn. *Common Juniper.* Leaves three in a whorl, mucronate, spreading or imbricated, longer than the berry. *Br. Fl.* 1. *p.* 438. *E. Fl. v.* iv. *p.* 251. *E. Bot. t.* 1100. *J. nana, Willd. E. Fl. v.* iv. *p.* 252. *E. Bot. Suppl. t.* 2743.

Woods at Killarney, &c. *β.* On many of the mountains all over the country. *Fl.* May. ♄.—A *shrub* growing to a considerable size in woods. The *var. β.* retains its procumbent form when cultivated. The *berries,* which are bluish-black, form an important article of commerce in Holland, where they are employed in the distillation of Geneva, and impart to it that peculiar flavour by which it is distinguished from other spirituous liquors.

3. TAXUS. *Linn.* Yew.

Barren fl. Perianth single at the base. *Stamens* numerous. *Anthers* peltate, 6—8-celled; cells opening beneath. *Fertile fl. Perianth* single, urceolate, scaly. *Style* none. *Drupe* fleshy, perforated at the extremity.—Name; *τοξον,* an *arrow;* it is said because arrows were poisoned with its juice. *Diœcia. Monadelphia.*

1. T. *baccata,* Linn. *Common Yew.* Leaves 2-ranked, crowded, linear, acute; flowers axillary, sessile. *Br. Fl.* 1. *p.* 439. *E. Fl. v.* iv. *p.* 253. *E. Bot. t.* 746.

Fine specimens of a very great age are to be met with in church-yards in various parts of the country. *Fl.* March. ♄.—A low *tree*, but with a *trunk* often of considerable diameter, with widely spreading branches. On Benyevena, County of Derry, where Mr. Moore finds it growing in the crevices of rocks, at an elevation of 1200 feet, it assumes the appearance of a low shrub. He also informs me that large trunks and roots are dug up in the flat of Magilligan, between the rocks and the sea, which is the principal bog timber of that district. Large trunks, of very great age, are also found in bogs in many parts of the country. The *wood* is hard and beautifully veined, and much valued for cabinet-makers' work, and was formerly still more highly prized for making bows, and on that account is said to have been planted extensively in church-yards. The *leaves* are fetid and very poisonous, and prove speedily fatal to cattle accidentally eating them when young and tender. The *berries* have a sweet mawkish taste, and may be eaten without danger.—The *Upright or Florencecourt Yew, T. fastigiata* of *Lindl. Syn.*, is a very distinct variety, if it be not a distinct species. I have only seen the fertile plant, the fruit of which, as Professor Lindley observes, is oblong (not roundish, as in the common var.) It is readily distinguished by its upright mode of growth, and deep green scattered leaves. The finest specimens in Ireland, or perhaps any where to be met with, grow at Comber in the County of Down, and near the town of Antrim, and are supposed to have been planted above fifty years. It is said to have been first observed at Florencecourt, the seat of the Earl of Enniskillen, but it has not been found in a truly wild state.

CLASS II. ENDOGENÆ OR MONOCOTYLEDONS.

Monocotyledonous or Endogenous plants. *Trunk* formed of cellular tissue and tubular vessels, which are irregularly scattered, with no distinction, into bark, wood and pith, and destitute of medullary rays: the oldest formation most external, the centre the newest and softest. *Leaves* mostly alternate, often sheathing, generally with parallel nerves. *Flowers* evident, the parts of which they are composed mostly arranged in a ternary manner; the *perianth* very frequently single. *Embryo* with one *cotyledon;* if with two, then the accessory one is imperfect and alternate with the other. *Plumule* included within the cotyledon, of which the opposite extremity usually encloses the radicle, and through which it bursts on germination.

SUBCLASS I. PETALOIDEÆ. *Lindl.*

Flowers with the segments of the perianth verticillate, in one or two rows, or wanting and naked, not covered by imbricated bracteas.

ORD. 73. AROIDEÆ. *Juss. Lindl.* Arum Family.

Flowers monœcious, arranged upon a spadix, often naked. Perianth 4—6-parted, or wanting. Stamens definite or indefinite, hypogynous, very short; anthers 1—2- or many-celled, ovate, turned outwards. Ovary free, 1- rarely 3-celled; stigma sessile. Fruit succulent or dry, not opening. Seeds solitary or several; embryo in the axis of fleshy or mealy albumen, straight, cylindrical, with a cleft on one side in which lies the plumule; radicle next the hilum, rarely at the opposite extremity.—*Herbs or shrubs. Roots often tuberous or thickened. Leaves sheathing at the base, with parallel or branching veins.*

1. ARUM. *Linn.* Cuckow-pint.

Spatha of one leaf, convolute at the base. *Perianth* none. *Spadix* with germens at the base. *Stamens* (sessile) near the middle of the *spadix,* which is naked above. *Berry* with one cell and many *seeds*.—Name; formerly written *Aron*, and supposed to be an ancient Egyptian word by which one of this tribe was known. *Monœcia. Polyandria.*

1. A. *maculatum*, Linn. *Cuckow-pint or Wake-robin.* Leaves all radical, hastato-sagittate, lobes deflexed; spadix club-shaped, obtuse, shorter than the spatha. *Br. Fl.* 1. *p.* 406. *E. Fl. v.* iv. *p.* 146. *E. Bot. t.* 1298.

Groves and hedge-banks, plentiful in many places about Dublin, Cork, Belfast, &c. *Fl.* April, May. ♃.—*Root* a *tuber*, affording an abundant amylaceous substance.—*Leaves* large, shining, often spotted with black. *Spatha* large, convolute. Above the *germens*, on the *spadix*, is a ring or circle of 2-celled, sessile *anthers*, and above these, another of apparently imperfect *germens*. The extremity of the *spadix* is purplish. *Berries* remaining during winter, after the leaves and spadix have decayed; crowded into an oblong spike of a bright scarlet colour.

ORD. 74. TYPHACEÆ. *Lindl.* Reed-mace Family.

Flowers monœcious, arranged upon a naked spadix. Perianth 3-parted. Stamens three or six; filaments long and slender; anthers wedge-shaped, erect. Ovary single, superior, 1-celled; ovule solitary, pendulous; style short; stigmas 1—2, linear, simple. Fruit dry, indehiscent, 1-celled, 1-seeded. Embryo in the centre of albumen, straight, taper, with a cleft in one side, in which lies the plumule; radicle next the hilum. —*Herbs growing in marshes or ditches. Stems without nodi. Leaves rigid, ensiform, with parallel veins.*

1. TYPHA. *Linn.* Cat's-tail or Reed-mace.

Flowers collected into very dense, cylindrical *spikes* or *catkins*. *Barren fl. Perianth* none. *Stamens* three together upon a chaffy or hairy receptacle, united below into one filament. *Fertile fl. Perianth* none. *Pericarp* pedicellate, surrounded at the base with hairs resembling a pappus.—Name; *τιφος*, a *marsh*, where the plant grows. *Monœcia. Triandria.*

1. T. *latifolia*, Linn. *Great Cat's-tail or Reed-mace.* Leaves linear, nearly plane; sterile and fertile catkins continuous. *Br. Fl.* 1. *p.* 386. *E. Fl. v.* iv. *p.* 71. *E. Bot. t.* 1455.

Borders of ponds, lakes, and in ditches, frequent. *Fl.* July, Aug. ♃.—*Leaves* very long, about an inch broad. *Catkins* very long, close together; *fertile one* greenish-brown; *sterile one* yellow, with one or two large membranaceous *bracteas*.

2. T. *angustifolia*, Linn. *Narrow-leaved Reed-mace.* Leaves linear, grooved below; sterile and fertile catkins a little distant

from each other. *Br. Fl.* 1. *p.* 386. *E. Fl. v.* iv. *p.* 72. *E. Bot. t.* 1456.

β. minor.—T. minor, Willd. much smaller in all its parts.

Lakes and ditches. Ditch near the turnpike-gate between Belfast and Carrickfergus; *Mr. Templeton.* In Lough Hanay, between Lisburn and Saintfield, abundant; *Mr. Campbell. Var.* β. Found by the late Mr. Underwood and myself in the lake at Sandymount, above twenty years ago. *Fl.* July. ♃.—As tall as the last, but with narrower leaves and catkins. In var. *β.* all the parts are much smaller than in the other variety, but agreeing with it, in having the separated cylindrical catkins.

2. SPARGANIUM. *Linn.* Bur-reed.

Flowers in sphærical, dense heads. *Barren fl. Perianth* single, of three leaves. *Fertile fl. Perianth* single, of three leaves. *Drupe* dry, with one seed.—Name, *σπαργανον*, a *little band,* from its narrow and long leaves.

Monœcia. Triandria.

1. S. *ramosum,* Huds. *Branched Bur-reed.* Leaves triangular at the base, their sides concave; common flowerstalk branched; stigma linear. *Br. Fl.* 1. *p.* 386. *E. Fl. v.* iv. *p.* 74. *E. Bot. t.* 744.

Ditches, lakes, and stagnant waters. *Fl.* July. ♃.—*Stem* about three feet high, with a few, long, sword-shaped *leaves* or *bracteas,* having broad membranous sheathing bases on the upper or branching part. *Root-leaves* very long, linear-ensiform, triangular at the base, their sides concave. *Sterile flowers* in sphærical *heads,* distantly placed; *fertile ones* below.

2. S. *simplex,* Huds. *Unbranched upright Bur-reed.* Leaves triangular at the base, their sides flat; common flowerstalk simple; stigma linear. *Br. Fl.* 1. *p.* 386. *E. Fl. v.* i. *p.* 75. *E. Bot. t.* 745.

Ditches and stagnant waters, especially in a gravelly soil. Curragha bog near Ashbourne, in the County of Dublin, near Belfast, and many other places. *Fl.* July. ♃.—Much smaller than the last. *Stem* rarely if at all branched, though the lower heads of *flowers* are stalked. The sides of the *leaves* are plane, not concave or grooved. The *flowers* pale yellow.

3. S. *natans,* Linn. *Floating Bur-reed.* Leaves floating, plane; common flowerstalk simple; stigma ovate, very short; head of sterile flowers mostly solitary. *Br. Fl.* 1. *p.* 387. *E. Fl. v.* iv. *p.* 75. *E. Bot. t.* 273.

Lakes, ditches, and stagnant waters. Plentiful in Cunnamara, and in a marsh on the Hill of Howth, &c. *Fl.* July. ♃.—*Leaves* very long, linear, pellucid.

ORD. 75. FLUVIALES. *Vent.* Pond-weed Family.

Flowers separated, monœcious or diœcious, sometimes perfect. Perianth of two or four pieces, often deciduous, rarely wanting. Stamens definite, hypogynous. Ovary one or more, superior; stigma simple; ovule solitary, pendulous. Fruit dry, not opening, 1-celled, 1-seeded. Seed pendulous; albumen none; embryo having a direction contrary to that of the seed, with a lateral cleft for the emission of the plumule.—*Water-plants. Leaves very vascular, with parallel veins. Flowers inconspicuous, usually arranged in terminal spikes.*

1. POTAMOGETON. *Linn.* Pond-weed.

Flowers sessile upon a *spike* or *spadix*, which issues from a sheathing *bractea* or *spatha*. *Perianth* single, of four scales. *Anthers* sessile, opposite the scales of the perianth. *Pistils* four: which become four small *nuts*. *Embryo* curved.—Name, from ποταμος, a *river*, and γειτων, a *neighbour*. All the species grow in the water, and often present as beautiful an appearance in clear streams and ponds, as the *Fuci* do in the ocean. They protect the spawn of fish, and harbour innumerable aquatic insects, affording food by their roots and seeds to aquatic birds.—Chamisso and Schlechtendal have well illustrated this Genus. *See Linnæa, v.* ii. *p.* 159.
Tetrandria. Tetragynia.

* *Leaves all opposite: stipules none.*

1. P. *densus*, Linn. *Opposite-leaved Pond-weed.* Leaves all opposite, amplexicaul, ovate, acuminate or lanceolate. *Br. Fl.* 1. *p.* 73. *E. Fl. v.* i. *p.* 230. *E. Bot. t.* 397.

Ditches. About Limerick and elsewhere, not unfrequent; *Mr. W. H. Harvey*. *Fl.* June, July. ♃.—*Head* of *flowers* small, rounded. *Leaves* keeled below, middle nerve or rib of many longitudinal cells, with two, and sometimes three lateral parallel veins on each side, the inner one the strongest.

* * *Leaves alternate, all submersed, with adnate stipules.*

2. P. *pectinatus*, Linn. *Fennel-leaved Pond-weed.* Leaves distichous, setaceous, single-nerved; sheathing by means of their adnate stipules; spike interrupted. *Br. Fl.* 1. *p.* 73. *E. Fl. v.* i. *p.* 236. *E. Bot. t.* 323.

Rivers, lakes, and salt-water ditches, frequent. *Fl.* July. ♃.—*Root* tuberous, with creeping scions. *Stems* very much branched, various in length, leafy, zigzag. *Spikes* few, solitary, each from one of the uppermost forks of the branches, on a longish stalk, cylindrical, with considerable interruptions, rising just above the surface, seldom produced but in still waters. *Fl.* two or three together, dull green. *Seeds* scarcely more than one or two from each flower, gibbous. Few plants vary more in the size of its herbage, which is most considerable in rivers and rapid streams, where the flowers seldom appear. It flowers more freely in salt-water ditches, where it grows less luxuriantly.

* * * *Leaves alternate, all linear, submersed; stipules free.*

3. P. *pusillus*, Linn. *Small Pond-weed.* Leaves narrow, linear, 3—5-nerved, with obscure connecting veins; peduncles elongated. *Br. Fl.* 1. *p.* 73. *E. Fl. v.* i. *p.* 235. *E. Bot. t.* 215.—*β. major;* stem more compressed; leaves broader; spike somewhat interrupted.—*P. compressus, Linn. E. Bot. t.* 418. *E. Fl. v.* i. *p.* 233.

Ditches and still waters, not uncommon. *β.* In Ballypheane bog; *Mr. J. Drummond.* In the Bann river; *Mr. Templeton.* In a pond at Florencecourt. *Fl.* July. ♃.—The *stem* is here, as in all of this division, more or less compressed. The *leaves* are more or less acute; the *spike* oblong, compact, or a little interrupted.

4. P. *gramineus*, Linn. *Grassy Pond-weed.* Leaves broadly linear, obtuse, three-nerved, with few and obscure connecting veins; peduncle scarcely longer than the oblong-oval spike. *Br. Fl.* 1. *p.* 74. *E. Fl. v.* i. *p.* 235. *E. Bot. t.* 2253.

Ponds and bog-drains. Drains at Portmore, County of Down; *Mr. Templeton.* Bog-drains at Enagh-Lough, County of Derry; *Mr. D. Moore,* 1834. Near Youghal; *Mr. R. Ball. Fl.* July. ♃.—Nearly allied to the last, but stouter, darker coloured, and with short *peduncles*, scarcely longer than the stipule of the leaf, from the axil of which they spring.

5. P. *acutifolius*, Link. *Sharp-leaved Pond-weed.* Leaves linear, acuminate, with three principal and numerous close parallel intermediate nerves occupying the whole surface; spikes oval, compact, about equal in length with the short peduncle. *Br. Fl.* 1. *p.* 74. *Hook. in E. Bot. Suppl. t.* 2609.

River Shannon, at Plassey and Castle-connel, near Limerick, (with leaves only); *Mr. W. H. Harvey. Fl.* July. ♃.—The leaves in Mr. Harvey's specimens are longer and broader than those represented in the figure in *E. Bot. Suppl.*, but exactly correspond with the description in having the leaves linear, acuminate, with numerous parallel nerves.

* * * * *Leaves alternate, ovate, or lanceolate: all submersed; stipules free.*

6. P. *crispus*, Linn. *Curled Pond-weed.* Leaves lanceolate, waved and serrated, 3-nerved; fruit beaked. *Br. Fl.* 1. *p.* 74. *E. Fl. v.* i. *p.* 233. *E. Bot. t.* 1012.

Ditches and rivers, frequent. *Fl.* June, July. ♃.—Whole *plant* immersed, bright green; *leaves* obtuse, crisped at the edges.

7. P. *perfoliatus*, Linn. *Perfoliate Pond-weed.* Leaves cordato-ovate, amplexicaul, 7-nerved, with smaller intermediate nerves. *Br. Fl.* 1. *p.* 74. *E. Fl. v.* i. *p.* 229. *E. Bot. t.* 168.

Ditches and lakes, in many places. *Fl.* July. ♃.—*Leaves* pellucid, olive-coloured. *Peduncles* rather short, thick. *Spikes* raised above the water, consisting of a few brownish *flowers*, with white *pollen*.

8. P. *lucens*, Linn. *Shining Pond-weed.* Leaves elliptic-lanceolate, mucronate, with several opposite pairs of parallel nerves springing from the midrib, connected by reticulations; spike cylindrical, many-flowered. *Br. Fl.* 1. *p.* 75. *E. Fl. v.* i. *p.* 231. *E. Bot. t.* 376.

Lakes, pools, and streams, not unfrequent. *Fl.* June, July. ♃.—A large species, very beautiful in the nervation of its leaves, which are of an olive-green colour. *Spikes* raised above the water, with numerous green flowers.

9. P. *prælongus*, Wulff. *Long stalked Pond-weed.* Leaves oblong, obtuse, with three principal and several linear parallel nerves arising from the base, connected by reticulations; peduncles elongated; spikes cylindrical, many-flowered. *Br. Fl. ed.* 3. *p.* 77.

In one of the small lakes above Kilrea, County of Derry; *Mr. D. Moore*. *Fl.* June, July. ♃.—"This is best distinguished by its truly oblong (by no means elliptical) *leaves*, nerved from the base, where they are semiamplexical, and by the lengthened *peduncle*. In size it almost equals *P. lucens*. Reichenbach has given an excellent representation of this species." *Hooker.*

* * * * * *Leaves alternate, upper ones floating, broader than the rest; stipules free.*

10. P. *heterophyllus*, Schreb. *Various-leaved Pond-weed.* Upper leaves elliptical, stalked, floating, slightly coriaceous; lower ones lanceolate, membranaceous, sessile; flowerstalks swelling upwards. *Br. Fl.* 1. *p.* 75. *E. Bot. t.* 1285. *E. Fl. v.* i. *p.* 229.

Rivers and lakes. In the river Liffey, above the Salmon-leap. River Lee, above the basin, and at Sunday's-well; *Mr. J. Drummond*. River Bann, between three and four feet long, and flowering, without any floating leaves; *Mr. D. Moore*. *Fl.* June, July. ♃.—*Leaves* distantly inserted on the stem, upper ones considerably larger than the rest.—"Distinguished by these marks from *P. rufescens* and *P. lanceolatus*." *Wilson.*

11. P. *rufescens*, Schrad. *Reddish Pond-weed.* Submersed leaves lanceolate, membranaceous, many-nerved, with connecting veins, and many linear reticulations at the midrib; floating ones subcoriaceous, on long stalks. *Br. Fl.* 1. *p.* 75.—*P. fluitans*, *E. Bot. t.* 1286. *E. Fl. v.* i. *p.* 230. *(not of Roth.)*

Rivers, ditches, and bog-drains. Ditches near Limerick, not common; *Mr. W. H. Harvey.* Enagh Lough, and in the river Roe, County of Derry; *Mr. D. Moore. Fl.* July. ♃.—As Mr. Wilson states in his letter to Doctor Hooker, "This does in some situations much resemble *P. lucens.*" It is remarkable for its reddish olive-colour, and is perhaps better known by its general aspect than by any character that can be applied to it.

12. P. *natans*, Linn. *Sharp-fruited broad-leaved Pond-weed.* Lower leaves submembranaceous or wanting, upper elliptical, coriaceous, floating; all on long stalks, many-nerved, distinctly cellular; fruit carinated. *Br. Fl.* 1. *p.* 76. *E. Bot. t.* 1822. *E. Fl. v.* i. *p.* 228.

Stagnant waters and slow streams, frequent. *Fl.* June, July. ♃.—*Stem* branching, several feet long, submersed; *spike* raised one or two inches above the water; flowers sessile, olive-green, with yellow *anthers.* A very troublesome weed in ponds, when the bottom consists of a clay soil.

2. ZOSTERA. *Linn.* Grass-wrack.

Stamens and *pistils* inserted in two rows upon one side of a *spadix. Spatha* foliaceous. *Anthers* ovate, sessile, alternating with the germens. *Germen* ovate. *Style* bifid. *Drupe* with one seed.—Name; ζωστηρ, a *girdle*, or *ribbon*, which the leaves somewhat resemble.

Monœcia. Monandria.

1. Z. *marina*, Linn. *Common Grass-wrack.* Leaves entire, somewhat 3-nerved; stem roundish. *Br. Fl.* 1. *p.* 385. *E. Fl. v.* i. *p.* 5. *E. Bot. t.* 467.

Creeks and ditches of salt water and on the sea-shores, common. *Fl.* through the summer. ♃.—*Stems* various in length, as are the linear, obtuse, somewhat 3-nerved *leaves*, which have sheathing bases. *Spadix* linear, arising from a sheathing portion of the leaf, which thus forms the *spatha. Flowers* green, on one side of the *spadix*, quite destitute of perianth, in two rows. *Pistils* and *anthers* alternate.—This is the now well known "*Alva (Ulva,) marina,*" used for beds, &c.

3. RUPPIA. *Linn.* Ruppia.

Flowers two, on a spadix arising from the sheathing bases of the leaves, which perform the office of a *spatha. Perianth* none. *Drupes* four, pedicellate, their *nuts* one-seeded.—Named after *Henry Bernard Ruppius*, author of *Flora Jenensis*, in 1718. *Tetrandria. Tetragynia.*

1. R. *maritima*, Linn. *Sea Ruppia. Br. Fl.* 1. *p.* 77. *E. Fl. v.* i. *p.* 237. *E. Bot. t.* 136.

Salt-water pools and ditches. Near the North Wall, Dublin; *Dr. R. Scott.* Near Passage, County of Cork; *Dr. D. H. Scott.* Abundant along the shore of Lough Foyle; *Mr. D. Moore. Fl.* July, Aug. ♃.—"*Stems* slender, filiform, flexuose, branched, leafy. *Leaves* linear-setaceous, with *sheaths* sometimes narrow and small, at other times large and inflated. *Spadix* at first very short, included in the *sheaths* or *spatha*, with two green flowers, one above another on opposite sides, and quite destitute of perianth. *Anthers* large, sessile, subquadrate, bursting horizontally, 1-celled. Mertens and Koch say that each pair is in fact the two cells of one anther, and that there are in reality but two sessile *stamens*. *Pollen*, a tube with three globules, one in the middle and one at each end of the tube. *Germens* resembling four minute tubercles in the centre between the anthers. After flowering, the *spadix* lengthens remarkably, to the height of five or six inches or more, and becomes spirally twisted, as if to bring the fruit to the level of the water, in which the *flowers* are always immersed, but Mr. Wilson observes the fruit to be submerged in every stage. The *germens* now swell, and their base is elongated into a footstalk, as the fruit ripens, one or two inches long. Each then becomes an oblique, ovate, acuminated *drupe*. This *drupe* is sometimes more beaked than at other times, and the sheaths of the leaves are sometimes but little inflated; then the plant becomes *R. rostellata* of Koch, and of Reichenbach in his *Iconog. t.* 174. *f.* 306." *Hooker.*

4. ZANNICHELLIA. *Linn.* Horned-Pond-weed.

Barren fl. *Perianth* none. *Fertile fl.* *Perianth* single, of one leaf. *Germens* four or more. *Style* one. *Stigma* peltate. *Capsules* nearly sessile.—Named in honour of *John Jerome Zannichelli*, a Venetian apothecary and botanist.
Monœcia. Monandria.

1. Z. *palustris*, Linn. *Common Horned-Pond-weed.* Anthers 4-celled; stigmas entire; pericarps toothed on the back. *Br. Fl.* 1. *p.* 385. *E. Fl. v.* iv. *p.* 70. *E. Bot. t.* 1844.

Ditches and stagnant waters, frequent. *Fl.* Aug. ⊙.—Floating. *Stems* long, filiform, branched. *Leaves* opposite, linear, entire, sometimes emarginate at the point. *Flowers* axillary, from a membranaceous bractea. *Fertile fl.* upon a very short stalk, from the base of which arises a single naked *anther*, borne on a short white *filament*.

ORD. 76. PISTIACEÆ. *Rich.* Pistia Family.

Flowers two, naked, enclosed in a spatha.—STERILE FL. Stamens definite. FERTILE FL. Ovary 1-celled, with one or more erect ovules: style short: stigma simple. Fruit membranaceous or capsular, not opening, one- or many-seeded. Seeds with a fungous testa, and a thickened indurated foramen. Embryo either in the axis of a fleshy albumen, and having a lateral cleft for the emission of the plumule, or at the apex of the nucleus.—*Aquatic floating plants, with very cellular lobed fronds, which bear the flowers from the margins.*

1. LEMNA. *Linn.* Duckweed.

Perianth single, monophyllous, membranaceous, urceolate. *Fruit* utricular.—Name, λεμμα, of the Greeks, from λεπις, a *scale*. *Diandria. Monogynia.*

1. L. *trisulca*, Linn. *Ivy-leaved Duckweed.* Fronds thin, elliptico-lanceolate, caudate at one extremity, at the other serrated; roots solitary. *Br. Fl.* 1. *p.* 12. *E. Fl. v.* i. *p.* 32. *E. Bot. t.* 926.

Clear stagnant waters. In the Boyne, near the bridge at Navan, and many other places. *Fl.* July. ☉.—*Fronds* from one-half to three-fourths of an inch in length, pellucid at the margins, reticulated. *Roots* solitary, tipped at the extremity, with a small *sheath*. *Hooker.*

2. L. *minor*, Linn. *Lesser Duckweed.* Fronds nearly ovate, compressed; roots solitary. *Br. Fl.* 1. *p.* 12. *E. Fl. v.* i. *p.* 32. *E. Bot. t.* 1095.

Stagnant waters, common. *Fl.* July. ☉.—About a line or a line and a half long; of a rather thick and succulent, but compact texture, slightly convex beneath. "This is the most abundant of all the species, covering the surface of ditches and ponds, and harbouring various insects and molluscæ, the food of ducks and other water-fowl, whence the English name of *Duckweed.* The young fronds constitute the *Lemna arhiza* of the French authors. The *capsule* is single-seeded; *seed* transverse, with its hilum "directed towards the narrow end of the frond. *Wilson.*" *Hooker.* The fruit of this species was first pointed out to me at the lake near Sandymount, by W. Wilson, Esq. of Warrington, in July, 1829.

3. L. *polyrhiza*, Linn. *Greater Duckweed.* Fronds obovate, rotundate, compressed; roots numerous, clustered. *Br. Fl.* 1. *p.* 13. *E. Fl. v.* i. *p.* 33. *E. Bot. t.* 2458.

Stagnant waters. Common about Limerick and elsewhere; *Mr. W. H. Harvey. Flowers* unknown in Britain. ☉.—The largest of all the species, half an inch long and nearly as broad, succulent, firm, faintly striated; a little convex below, where, and at the margin above, it is of a deep purple colour. *Roots* numerous from a central point.

4. L. *gibba*, Linn. *Gibbous Duckweed.* Fronds obovate, nearly plane above, hemispherical beneath; roots subsolitary. *Br. Fl.* 1. *p.* 13. *E. Fl. v.* i. *p.* 32. *E. Bot. t.* 1233.

Stagnant water, less frequent than the last. *Fl.* June—Sept. ☉.—Size of *L. minor*, but readily distinguished by its gibbous or even hemispherical lower surface, which is moreover white, pellucid, and beautifully cellular, the cells filled with air, (*Wilson*); upper side plane, green, opaque. "*Capsule* four-seeded. *Seeds* furrowed, not transversely placed, but with the hilum towards the top of the capsule." *Wilson.*

Alismac DC. [I vid. p. 247/4. Bent.

ORD. 77. JUNCAGINEÆ. *Rich.* Arrow-grass Family.

Perianth of six divisions, in a double row, both herbaceous, rarely wanting. Stamens six. Ovaries 3—6, firmly cohering; ovules one or two, approximated by their base, erect. Fruit dry, 1—2-seeded. Seeds erect. Albumen none. Embryo with a lateral cleft, for the emission of the plumule (as in *Aroideæ*); radicle straight, remote from the hilum.—*Marsh plants. Leaves narrow. Flowers inconspicuous, in spikes or racemes.*

1. TRIGLOCHIN. *Linn.* Arrow-grass.

Perianth of six, concave, deciduous leaves, three outer and three inner. *Anthers* sessile, lodged in the leaves of the *perianth*, with their backs towards the pistil. *Capsules* 3—6, 1-seeded, united by a longitudinal receptacle, from which they separate at the base.—Name from τρεις, *three*, and γλωχις, a *point*, from the three points of the capsules.

Hexandria. Trigynia.

1. T. *palustre*, Linn. *Marsh Arrow-grass.* Fruit 3-celled, nearly linear. *Br. Fl.* 1. *p.* 171. *E. Fl. v.* ii. *p.* 200. *E. Bot. t.* 366.

Wet meadows, and by the sides of ditches in marshy situations, plentiful. *Fl.* Aug. ♃.—*Leaves* all radical, linear, fleshy, slightly grooved on the upper side, sheathing and membranous at the base. *Scape* eight to ten inches high, terminating in a lax, simple *spike* or *raceme. Flowers* small, greenish. *Capsules* three, linear, united by a common receptacle, so as to form one 3-celled *fruit*, each cell separating at its base, and suspended by the extremity, containing one *seed*, and not dehiscent.—" Mr. Wilson finds that the leaves, when bruised, yield a very fœtid smell, and that the root, under certain circumstances at least, is a creeping one, sending out jointed, scaly runners, with comparatively large, ovate, shortly accuminated *bulbs* at the extremity. These bulbs at the end of the jointed runners have very much the appearance of a scorpion's tail." *Hooker.*

2. T. *maritimum*, Linn. *Sea-side Arrow-grass.* Fruit six-celled, ovate. *Br. Fl.* 1. *p.* 171. *E. Fl. v.* ii. *p.* 201. *E. Bot. t.* 255.

Salt marshes, not unfrequent. *Fl.* May—Aug. ♃.—Larger than the last, and stouter, differing essentially in its fruit, which is formed of six combined *capsules*, constituting a broadly ovate *fruit;* not separating from the base and suspended by their summits, as in *T. palustre.* Even when in flower, the same distinction is observable in the germen as in the fruit.

ORD. 78. ALISMACEÆ. *Br.* Water-Plantain Family. Alisma [illegible]

Perianth of six divisions, in two rows; outer herbaceous; inner petaloid. Stamens definite or indefinite. Ovaries free, many, 1-celled; ovules erect or ascending, solitary, or two, attached to the suture, at a distance from each other: styles and stigmas as many as there are ovaries. Seed without albumen. Embryo shaped like a horse-shoe, with its radicle next the hilum.—*Aquatic or floating herbaceous plants. Leaves with parallel veins.*

1. ALISMA. *Linn.* Water-Plantain.

Calyx of three leaves. *Petals* three. *Capsules* many, clustered, distinct, indehiscent, one-seeded. *Embryo* much curved.—Name from *alis, water,* in Celtic. The genus is altogether aquatic. *Hexandria. Polygynia.*

1. A. *Plantago,* Linn. *Greater Water-Plantain.* Leaves ovate, acute; fruit depressed; capsules obtusely trigonal. *Br. Fl.* 1. *p.* 172. *E. Fl. v.* ii. *p.* 203. *E. Bot. t.* 837.

Near the margins of lakes, rivers and ditches, frequent. *Fl.* July. ♃.—Two to three feet high. *Leaves* all radical, on long stalks. *Scape* branched upward; *branches* all whorled, bracteated, compound. *Flowers* of a pale rose-colour. *Embryo* curved.

2. A. *natans,* Linn. *Floating Water-Plantain.* Leaves elliptical, obtuse; stem floating and rooting; peduncles simple. *Br. Fl.* 1. *p.* 173. *E. Fl. v.* ii. *p.* 204. *E. Bot. t.* 775.

Lakes and ditches. Very plentiful in Cunnamara, and the large marsh on the Hill of Howth. County of Down; *Mr. Templeton. Fl.* July, Aug. ♃.—At the base of the plant are long linear-lanceolate, membranous *scales,* or abortive *root-leaves. Stem-leaves* floating, on long stalks, scarcely nerved.

3. A. *ranunculoides,* Linn. *Lesser Water-Plantain.* Leaves all radical, linear-lanceolate; scape umbellate; fruit globose, squarrose; capsules acute. *Br. Fl.* 1. *p.* 173. *E. Fl. v.* ii. *p.* 205. *E. Bot. t.* 326.

β. With creeping runners. *A. repens,* "*Davies' Welsh Bot.* 36." *E. Fl. v.* ii. *p.* 205.

Ditches and turfy bogs, frequent. *β.* In ditches at the Murrow of Wicklow. *Fl.* Aug. Sept. ♃.—*Flower-stalks* radical, erect, three to ten inches high, bearing one or two whorls of light-purple *flowers. Capsules* numerous, collected into a globular head, obovate, compressed, pointed, with five strong ribs.

2. SAGITTARIA. *Linn.* Arrow-head.

Barren fl. Calyx 3-leaved. *Petals* three. *Stamens* numerous.—*Fertile fl.* *Calyx* 3-leaved. *Petals* three. *Pistils* very numerous, collected into *a head.* *Pericarps* 1-seeded, compressed, margined.—Named from *sagitta*, an *arrow*, from the shape of the leaves. *Monœcia. Polyandria.*

1. S. *sagittifolia*, Linn. *Common Arrow-head.* Leaves arrow-shaped, the lobes lanceolate, straight. *Br. Fl.* 1. *p.* 406. *E. Fl. v.* iv. *p.* 144. *E. Bot. t.* 84.

Ditches and margins of rivers. Plentiful in the County of Fermanagh, where it had been previously noticed by Dr. Scott, and banks of the Shannon, near Portumna. In the Lagan river near Lough Neagh; *Mr. Templeton.* In the lake at Killikeen, and at Drigget, County of Cavan; *Rev. Mr. Halpin.* *Fl.* July, Aug. ♃.—A beautiful aquatic, with large, truly arrow-shaped *leaves*, rising above the water.

Ord. 79. HYDROCHARIDEÆ. *Juss.* Frog-bit Family.

Flowers perfect or separated. Perianth semipetaloid, 3—6-cleft, in the fertile flowers adherent with the ovary. Stamens definite or indefinite. Ovary one: stigmas many. Pericarp baccate or capsular, without valves, 1- or many-celled. Seeds without albumen. Plumule inconspicuous.—*Aquatic, herbaceous plants. Leaves with parallel veins. Flowers spathaceous.*

1. Stratiotes. *Linn.* Water-Soldier.

Spatha of two leaves. *Calyx* 3-cleft. *Corolla* of three petals. *Berry* inferior, angular, with six cells, many-seeded.—Name from στρατος, an *army*, on account of the numerous sword-like leaves. *Polyandria. Pentagynia.*

1. S. *aloides*, Linn. *Water-Soldier.* Leaves sword-shaped, triangular, with a prominent rib and sharp marginal prickles. *Br. Fl.* 1. *p.* 262. *E. Fl. v.* iii. *p.* 34. *E. Bot. t.* 379.

Lakes and ditches or drains; near Crum-castle and Castle-Saunderson an the banks of Lough Erne; also on the banks of the Shannon, near Portumna. Belfast water-course; *Mr. Templeton. Fl.* July. ♃.—A singular plant, resembling an *Aloe*, with numerous radical *leaves* thrown up from creeping runners, which penetrate far and deep in the mud. *Scape* four to six inches long, compressed, two-edged. *Flowers* white from the compressed two-leaved *spatha.* Sometimes the *flowers* are diœcious, and sometimes the *stamens* are on the flower with the 5 or 6-cleft *styles.*

2. Hydrocharis. *Linn.* Frog-bit.

Flowers spathaceous. *Barren fl.* *Calyx* in three deep segments. *Corolla* of three petals. *Stamens* nine, in three rows, within which are three imperfect *styles.* *Fertile fl.* *Calyx* in three deep segments. *Petals* three. *Styles* six, each with two *stigmas*. *Capsules* inferior, coriaceous, roundish, 6-celled, many-seeded.—Name; *ὕδωρ*, *water*, and *χαίρω*, to *rejoice:* being aquatic plants. *Diœcia. Enneandria.*

1. H. *Mórsus Ránæ*, Linn. *Common Frog-bit.* *Br. Fl.* 1. *p.* 438. *E. Fl.* *v.* iv. *p.* 250. *E. Bot.* *t.* 808.

Ditches and bog-pits; near Bulruddery; bog of Curragha; near Cavan, and by the banks of the river Fergus near Ennis, &c. *Fl.* July. ♃.—Floating, and sending down from the horizontal *stems*, long, fibrous *radicles*. *Leaves* petioled, reniform, entire. *Flowers* subumbellate, arising from pellucid membranous *spathas*, large, white, delicate.

ORD. 80. IRIDEÆ. *Juss.* Corn-Flag Family.

Perianth petaloid, of six divisions (parted or tubular), sometimes irregular; with the three inner segments sometimes small, deciduous. Stamens three, inserted upon the base of the outer segments; filaments distinct or connate: anthers turned outwards, fixed by the base, 2-celled, opening longitudinally. Ovary 3-celled, with the cells many-seeded: style one; stigmas three, often lamellate, or petaloid, rarely 2-lipped, sometimes obsoletely 3-lobed. Capsule 3-celled, 3-valved; the valves bearing the dissepiments on their middle. Seeds fixed to the internal angle of the cell, sometimes to a central, at length free, columnar receptacle. Albumen horny or densely fleshy. Embryo included.—*Herbaceous plants, very seldom under-shrubs. Roots tuberous or fibrous. Leaves equitant, distichous. Bractea usually spathaceous. Flowers brightly coloured.*

1. IRIS. *Linn.* Iris or Flower de Luce.

Perianth single, petaloid, 6-cleft, each alternate segment longer and reflexed. *Stigmas* three, petaloid, covering the stamens. —Name from the beautiful and varied colours of the flowers. *Triandria. Monogynia.*

1. I. *pseud-acorus*, Linn. *Yellow Water-Iris or Corn-Flag.* Leaves sword-shaped; perianth beardless, its inner segments smaller than the stigma. *Br. Fl.* 1. *p.* 18. *E. Fl.* *v.* i. *p.* 48. *E. Bot.* *t.* 578.

Watery places, wet meadows and ditches, frequent. *Fl.* June, July. ♃.—*Flowers* large, deep yellow. *Root* large, horizontal, very acrid. "A piece of it held between the teeth is said to cure the tooth-ache, and is otherwise used medicinally, and also for giving a black dye and making ink. The *seeds*, when roasted, are recommended as a substitute for coffee." *Hooker.*

2. I. *fœtidissima*, Linn. *Stinking Iris.* Leaves sword-

shaped; perianth beardless, its inner segments spreading, about as large as the stigmas; stem one-angled. *Br. Fl.* 1. *p.* 18. *E. Fl. v.* i. *p.* 49. *E. Bot. t.* 596.

Woods, ditch-banks, and pastures. Frequent in the Counties of Dublin and Wicklow. Found at Kilgobbin, and in fields near Templeogue. On the banks of the Barrow near Portarlington; *Rev. Mr. Halpin. Fl.* May. ♃.—*Flowers* much smaller than the last, dull livid purple. The *leaves*, when bruised, yield a disagreeable smell, which has been compared to roast-beef, whence its common name, *Roast-beef plant.* It appears to grow principally in the eastern parts of the country. The *Iris tuberosa* or *Snake's-head Iris*, which has tetragonal leaves, has been observed by Mr. Drummond and others growing on a dry ditch-bank, in a lane near the Cork Botanic Garden, to which it had not been introduced previously to his finding it; but as it is a native of the Levant, it can scarcely be considered as indigenous to Ireland.

2. Crocus. *Linn.* Crocus.

Perianth coloured; *tube* very long; limb cut into six equal segments. *Stigmas* 3-lobed, plaited.—Name, from κροκη, a *thread* or *filament*, from the appearance of the saffron of the shops, which is the dried stigmas of *Crocus sativus.*

Triandria. Monogynia.

1. C. *vernus*, Willd. *Purple Spring Crocus.* Stigma erect, within the flower, cut into three jagged wedge-shaped lobes. *Br. Fl.* 1. *p.* 17. *E. Fl. v.* i. *p.* 46. *E. Bot. t.* 344.

Meadows and fields, naturalized. Plentiful about Dunganstown, near the old castle. *Fl.* March. ♃.—*Flowers* blue, or sometimes white. *Stigma* pale, inodorous. The top of the tube of the *corolla* is closed with pellucid hairs, as first noticed by Mr. Ker in *Curt. Mag.* where a figure of the plant is given. It is very common in gardens, flowering about a fortnight later than the still more common yellow *Crocus, C. mæsiacus* of Ker, in *Bot. Mag. t.* 1111.

Ord. 81. ORCHIDEÆ. *Juss.* Orchis Family.

Perianth superior, ringent, of six segments in two rows, the three outer usually coloured, of which the odd one is uppermost, in consequence of a twisting of the ovary, and one called the lip (*labellum,*) is undermost; this latter is frequently lobed, of a different form from the others, and very often spurred at the base. Stamens three, united in a central column, the two lateral usually abortive, and the central perfect, or the central abortive and the two lateral perfect: rarely all perfect; anthers either persistent or deciduous, 2- or 4- or 8-celled; pollen either powdery or cohering in definite or indefinite waxy masses, either constantly adhering to a gland or becoming loose in their cells. Ovary 1-celled, with three parietal placentas; style forming part of the column of the stamens; stigma a viscid space in front of the column, communicating directly with the ovary by a distinct open canal. Impregnation taking effect by absorption from the pollen-masses through the gland into the stigmatic canal. Capsule inferior, bursting with three valves and three ribs, very rarely baccate. Seeds parietal, very numerous; testa loose, reticulated, contracted at each end, except in one or two genera; albumen none. Embryo a solid, undivided, fleshy mass.

Of this extensive and highly interesting and beautiful Family, the greater proportion are natives of the tropics, and they gradually diminish towards the arctic regions, where they disappear. Vanilla is the fragrant seed-vessel of *Vanilla aromatica.* Salep is made from the roots of *Orchis mascula,* and other terrestrial European species.

* *Anthers of two distinct, vertical cells, fixed to the top of the column, immediately above the stigma. Pollen-mass stalked, composed of grains which cohere elastically, having a gland at the base of the stalk.*

1. ORCHIS. *Linn.* Orchis.

Flower ringent. *Lip* spurred. *Glands* of the stalks of the *pollen-mass* contained in a common little pouch.—Name; an ancient appellation of the plant.

Gynandria. Monandria.

* *Tubers two, undivided.*

1. O. *Morio,* Linn. *Green-winged Meadow Orchis.* Lip 3-lobed, somewhat crenate, the middle lobe emarginate; calyx leaves ascending, ribbed, connivent, enclosing the two lateral petals; spur ascending, blunt, rather shorter than the germen. *Br. Fl.* 1. *p.* 370. *E. Fl. v.* iv. *p.* 11. *E. Bot. t.* 2059.

Meadows and pastures. Frequent in the County of Dublin. *Fl.* June. ♃.—*Stem* from a span to a foot high. *Flowers* few, in a lax *spike. Calyx* purplish green, forming a sort of helmet over the rest of the flower. *Lip* purple, pale in the middle, with purple spots.

2. O. *mascula,* Linn. *Early purple Orchis.* Lip 3-lobed, somewhat crenate, the middle lobe emarginate; two lateral sepals reflexed upwards; spur obtuse, rather longer than the germen. *Br. Fl.* 1. *p.* 370. *E. Fl. v.* iv. *p.* 11. *E. Bot. t.* 631.

Woods and pastures, frequent. *Fl.* May. ♃.—*Stem* one foot high. *Leaves* generally marked with dark purple spots. *Flowers* in a lax oblong *spike,* purple; the centre of the *lip* whitish at the base and spotted, sometimes altogether white.

3. O. *fusca*, Jacq. *Great brown-winged Orchis.* Lip deeply 3-lobed, with raised rough dark points; lateral lobes linear-oblong, intermediate one large, obcordate, crenate and emarginate, with a point in the sinus; sepals rather obtuse, connivent, including the two lateral petals; spur obtuse, about half as long as the germen. *Br. Fl.* 1. *p.* 371. *E. Fl. v.* iv. *p.* 13. *E. Bot. t.* 16.

Summerstown-bog, near Cork; *Mr. J. Drummond*, as stated by Doctor Hincks, but I have not seen Irish specimens. *Fl.* May, June. ♃.—"*Stem* one to two feet high. *Leaves* ovato-oblong, obtuse. *Flowers* forming a handsome *spike*, with variegated purple *petals*; the *helmet* of a dark-greenish purple, the *lip* much paler."

4. O. *pyramidalis*, Linn. *Pyramidal Orchis.* Lip with three equal entire lobes and two protuberances at the base above; sepals spreading, acuminate; spur subulato-filiform, longer than the germen; stalks of the pollen-masses united by one gland. *Br. Fl.* 1. *p.* 372. *E. Fl. v.* iv. *p.* 10. *E. Bot. t.* 110.—*Anacamptis pyramidalis*, *Rich.*—*Lindl.*

Pastures, in loamy and sandy soils. Very common in the County of Dublin. Plentiful about Oldcastle in the County of Cavan; *Rev. N. J. Halpin*; not found in the southern or northern counties. *Fl.* July. ♃.—*Leaves* very acuminate. *Flowers* of a delicate rose-purple, spirally arranged in a close, broad and ovate *spike*, sometimes white.

* * *Tubers two, palmate.*

5. O. *latifolia*, Linn. *Marsh Orchis.* Lip slightly 3-lobed, its sides reflexed, crenate; sepals patent; two lateral petals connivent; spur cylindrical, shorter than the germen; bracteas longer than the flower. *Br. Fl.* 1. *p.* 372. *E. Fl. v.* iv. *p.* 21. *E. Bot. t.* 2308.

β. palmata palustris tota rubra, Dill. in Raii. Syn. 382.

Marshes and moist ground, common. *Fl.* June. ♃.—*Flowers* of a deep purple, the *lip* dotted and marked with purple lines; in β. *Flowers* flesh-colour. *Plant* never more than half the size of the other, and most frequently found in salt marshes.

6. O. *maculata*, Linn. *Spotted palmate Orchis.* Lip plane, 3-lobed, sometimes obscurely so; sepals spreading; two lateral petals connivent; spur cylindrical, shorter than, and bracteas as long as, the germen. *Br. Fl.* 1. *p.* 372. *E. Fl. v.* iv. *p.* 22. *E. Bot. t.* 632.

Pastures and heaths, frequent; often covering entire fields. *Fl.* June, July. ♃.—About a foot high. *Leaves* distant, spotted with purple. *Flowers* pale purple or white, more or less spotted or streaked, especially the lip.

2. GYMNADENIA. *Br.* Gymnadenia.

Lip spurred. *Glands* of the stalks of the *pollen-masses* naked, approximated.—Name; *γυμνος*, *naked*, and *αδην*, a *gland*, one of the essential characters of this Genus.

Gynandria. Monandria.

1. G. *conopsea*, Br. *Fragrant Gymnadenia.* *Br. Fl.* 1. *p.* 373. *Orchis conopsea, Linn.*—*E. Bot. t.* 10. *E. Fl. v.* iv. *p.* 23.

Wet pastures and boggy ground. Very abundant in the County of Dublin and other parts of the country. County of Derry, frequent; *Mr. D. Moore.* Mr. Drummond found it on the banks of the Lee, near Cork. *Fl.* June—Aug. ♃.—*Stem* one foot high. *Tubers* palmate. *Leaves* linear-lanceolate, keeled. *Flowers* in an ovato-oblong, rather dense *spike*, rose-purple, rarely white. *Lip* 3-lobed, not spotted, the lobes equal, entire, rounded. The two lateral *sepals* spreading, their margins revolute. Two lateral *petals* connivent. *Spur* filiform, twice as long as the germen.

3. HABENARIA. *Br.* Habenaria.

Flower ringent. *Lip* spurred. *Glands* of the stalks of the *pollen-masses* naked, distant.—Name; *habena*, a *thong* or *lash*, which the spur sometimes resembles.

Gynandria. Monandria.

1. H. *viridis*, Br. *Green Habenaria.* Spur very short, two-lobed; lip linear, bifid, with an intermediate tooth; bracteas much longer than the flowers; tubers palmate.—*Br. Fl.* 1. *p.* 373.—*Orchis viridis, Sm. E. Fl. v.* iv. *p.* 20.—*Satyrium viride, Linn. E. Bot. t.* 94.

Dry hilly pastures, not unfrequent. *Fl.* June, July. ♃.—*Stem* six to eight inches high. Lower *leaves* nearly ovate, obtuse. *Calyx* and lateral *petals* connivent and forming a helmet, green. *Lip* small, greenish-brown.

2. H. *albida*, Br. *Small white Habenaria.* Spur obtuse, much shorter than the germen; lip 3-cleft, the segments acute; the middle one the longest; sepals and lateral petals nearly equal, ovate, concave. *Br. Fl.* 1. *p.* 373.—*Orchis albida, Sm.*—*E. Fl. v.* iv. *p.* 18.—*Satyrium albidum, Linn.*—*E. Bot. t.* 505.

Mountain pastures, not unfrequent. Luggelaw and other places in the County of Wicklow. Abundant in Antrim and Derry; *Mr. Templeton* and *Mr. D. Moore.* *Fl.* June, July. ♃.—About a span high. *Leaves* oblong, striated, lower ones obtuse. *Flowers* white, small, fragrant; *lip* scarcely longer than the *calyx*, deflexed.

3. H. *bifolia*, Br. *Butterfly Habenaria.* Spur filiform, twice as long as the germen; lip linear, entire; upper sepal and the lateral petals connivent; radical leaves two, oblongo-ovate, attenuated at the base. *Br. Fl.* 1. *p.* 374.—*Orchis bifolia, Linn.*—*E. Bot. t.* 22. *E. Fl. v.* iv. *p.* 9.

Moist boggy meadows and copses, frequent. *Fl.* June. ♃.—*Tu-*

bers undivided, tapering. *Stem* 1—1½ foot high, with two, rarely three, large, radical *leaves*, and three to four very small, cauline ones. *Spike* long, of numerous rather large, yellowish-white, very fragrant *flowers*. The *bases* of the *cells* of the *anther* are very distant from each other.—This is the genus *Platanthera* of Richard.

4. H. *chlorantha*, Hook. *Yellow Butterfly Habenaria.* "Spur half as long again as the germen; lip ovato-lanceolate, scarcely longer than the petals; cauline-leaves lanceolate, radical ones two, obovate, patent." *Br. Fl. ed.* 3. *p.* 376.—*Platanthera chlorantha*, "*Cust.*"—*Reich. Fl. Germ. Exsicc. Sect.* 1. *p.* 120. *Lindl. Gen. et Sp. Orchid. ined.*—*Orchis bifolia, Fl. Dan. t.* 235. *Hooker.*

On Ma'am, Cunnamara, Aug. 1835; *Chas. C. Babington, Esq. Fl.* June. ♃.—Now that the plant has been described by Dr. Hooker, in the 3d edition of his excellent Flora of the plants of Britain quoted above, it will probably be found in other parts of the country, where it may have been overlooked for *H. bifolia.*—"Stouter than the preceding, differing in the form and direction of the *leaves*, and in the larger and greener *flowers*, which expand at an earlier season."—*Reichenbach. Hooker.*

4. Ophrys. *Linn.* Ophrys.

Perianth somewhat patent. *Lip* without a spur. *Glands* of the stalks of the *pollen-masses* in a distinct little pouch.—Name; οφρυς, the *eye-brow*, which Pliny says this plant was used to blacken. *Gynandria. Monandria.*

1. O. *apifera*, Huds. *Bee Ophrys.* Lip tumid, trifid and reflexed at the extremity; the intermediate lobe trifid, its middle segments longest, subulate; anther elongated, with a hooked point. *Br. Fl.* 1. *p.* 375. *E. Fl. v.* iv. *p.* 30. *E. Bot. t.* 65.

Sandy and clayey soils, also in limestone districts. Portmarnock; field near Kingstown, and near Bray-head, in various places. Near Geneva Barracks, County of Waterford; *Doctor Barker. Fl.* July. ♃.—*Flowers* large. *Calyx* purplish or greenish-white: lateral *petals* oblong, very small, of the same colour. *Lip* velvety or silky, of a rich brown, variegated with yellow. The only species of this interesting genus, (of which there are five species in England,) yet observed in Ireland.

* * *Anther parallel with the stigma. Pollen-masses farinaceous, or composed of angular grains, fixed to the apex of the stigma, not stalked.*

5. Neottia. *Jacq.* Lady's Tresses.

Perianth converging, two lateral *calyx-leaves* including the base of the beardless *lip*. *Column* wingless. *Pollen* farinaceous. *Br.*—Name, νεοττια, a *Bird's-nest*, formerly applied by Dodonæus, and even by Linnæus, to our *Listera Nidus-Avis*, on account of its densely tufted fibres; but subsequently abandoned. It has since been chosen by Jacquin for the present genus, which is sanctioned by the high authority of Swartz, Willdenow, Smith, and Brown. "It is Spiranthes of Richard." (*Hooker.*)

Gynandria. Monandria.

1. N. *spiralis*, Rich. *Fragrant Lady's Tresses.* Root-leaves oblong, subpetiolate; spike twisted, unilateral; lip oblong. *Br. Fl.* 1. *p.* 376. *E. Fl. v.* iv. *p.* 35.—*Ophrys spiralis, Linn.* —*E. Bot. t.* 541.

Dry pastures. I found this on Bray-common, in August, 1810, where it was subsequently observed by Doctor Taylor. Phœnix Park, between Chapelizod and the Magazine; *Mr. Leslie Ogilby* and *Mr. J. Johnston.* Near Cork; *Rev. William Hincks. Fl.* Aug. Sept. ♃.—*Tubers* oblong, three to four. *Stem* four to six inches high, rather bracteated than leafy. *Flowers* singularly spiral on the stalk, greenish-white. Upper *sepal* and two *inner petals* combined. *Lip* longer than the rest of the flower, oblong, broader and crenate at the apex. *Stigma* and *anther* both acuminate.

2. N. *gemmipara*, Sm. *Proliferous Lady's Tresses.* Leaves lanceolate, as tall as the stalk; spike 3-ranked, twisted; bracteas glabrous. *Br. Fl.* 1. *p.* 377. *E. Fl. v.* iv. *p.* 36. *E. Bot. Suppl. t.* 2786.

Dunboy, near Bearhaven, County of Cork, 1810, in small quantities; *Mr. J. Drummond*, but no one has since found it. *Fl.* July. ♃.— I have not seen a specimen of this rare plant.

6. LISTERA. *Br.* Bird's-nest or Twayblade.

Perianth irregular. *Lip* 2-lobed. *Column* wingless. *Anther* fixed by its base. *Pollen* farinaceous. *Br.*—Named in honour of *Dr. Martin Lister*; an eminent British Naturalist.

Gynandria. Monandria.

1. L. *ovata*, Br. *Common Twayblade.* Stem with only a pair of ovato-elliptical opposite leaves; column of fructification, with a crest in which the anther is placed. *Br. Fl.* 1. *p.* 377. *E. Fl. v.* iv. *p.* 37.—*Ophrys ovata, Linn. E. Bot. t.* 1548.

Woods and sandy moist meadows, frequent. *Fl.* June. ♃.—One foot high. *Leaves* striated. *Flowers* distant upon the *spike*, yellowish-green. *Calyx-segments* (sepals) ovate; two lateral *petals* linear-oblong; *lip* long, bifid, without any teeth at the base. *Bracteas* very short.

2. L. *cordata*, Br. *Heart-leaved Twayblade.* Stem with only two, cordate, opposite leaves; column without any crest; lip with a tooth on each side at the base. *Br. Fl.* 1. *p.* 377. *E. Fl. v.* iv. *p.* 38.—*Ophrys cordata, Linn.*—*E. Bot. t.* 358.

Moist heaths among moss. At Lough Bray, above the lower lake;

Doctor Stokes. County of Donegal; *R. Brown, Esq.* Near Cullenagh, Queen's County; *Mr. Bradburry.* On the heath in Newtownards Park. Near Moneymore, Derry; *Mr. D. Moore. Fl.* July, Aug. ♃.—*Root* a few long fleshy fibres. *Stems* three to five inches high. (Nearly two feet high in Newtownards Park, overshadowed with heath; Mr. Templeton.) *Flowers* few, very small, spiked, greenish-brown. *Leaves* of the *Perianth* somewhat spreading, those of the *Calyx* ovate. Lateral *petals* linear, oblong. *Lip* pendant, linear.

3. L. *Nidus-Avis*, Hook. *Common Bird's-nest.* Stems with sheathing scales, leafless; column without any crest; lip linear-oblong, with two spreading lobes, toothless at the base. *Br. Fl.* 1. *p.* 377. *Hook. in Fl. Lond. N. S. t.* 38. *E. Fl. v.* iv. *p.* 38.—*Ophrys Nidus-Avis, Linn. E. Bot. t.* 48.

Shady woods. In Collin Glen, near Belfast; *Mr. Templeton.* Farnham-woods, where it was first observed by Mr. Joseph Archibald. Glenarm; *Mr. Robert Patterson.* Glen of Altmore, Cushendall; *Mr. Wm. Thomson. Fl.* May, June. ♃.—*Roots* of many short, thick, densely aggregated, fleshy *fibres. Stem* about a foot high. *Flowers* spiked, of a dingy brown. *Calyx-leaves* and lateral *petals* oblong-oval, nearly equal. *Lobes* of the *lip* spreading. This can scarcely be generically distinguished from the preceding. (*Hooker.*)

* * * •*Anther terminal, persistent. Pollen-masses pulverulent or composed of angular granules, eventually fixed to the back of the stigma.*

7. EPIPACTIS. *Br.* Helleborine.

Lip very concave at the base, the extremity undivided or three-lobed, the middle lobe large, and as it were, jointed. *Pollen* farinaceous. *Br.*—Name, given to some kind of Helleborine by the Greeks. *Gynandria. Monandria.*

1. E. *latifolia*, Swartz. *Broad-leaved Helleborine.* Leaves broadly ovate, amplexicaul; perianth connivent, lower bracteas longer than the drooping flowers; lip 3-lobed, middle lobe roundish, shortly acuminated. *Br. Fl.* 1. *p.* 378. *Hook. in Fl. Lond. N. S. t.* 102. *E. Fl. v.* iv. *p.* 40.—*Serapias latifolia, Linn.*—*E. Bot. t.* 269.

Shady woods. Sans Souci, near Bray; Farnham, and many other places. *Fl.* July, Aug. ♃.—*Root* creeping, with long fibres. *Stem* one to three feet high. Upper *leaves* lanceolate. *Flowers* in a very long, lax *spike*, greenish purple, but varying very much in intensity.

2. E. *palustris*, Sw. *Marsh Helleborine.* Leaves lanceolate; perianth patent; bracteas mostly shorter than the slightly drooping flowers; lip 3-lobed, middle lobe oval, crenate, retuse, longer than the rest of the perianth. *Br. Fl.* 1. *p.* 378. *Hook. in Fl. Lond. N. S. t.* 89. *E. Fl. v.* iv. *p.* 42.—*Serapias palustris, Scop.*—*E. Bot. t.* 270.—*S. longifolia, Linn.*

Moist and sandy ground. Plentiful at Portmarnock, and marshy ground about Enniskerry, and other similar situations. On the shore near Belfast; *Mr. Templeton. Fl.* July. ♃.—*Stem* one foot high, purplish above. *Calyx* purple green; lateral *petals* and *lip* white, with rose-coloured streaks at the base.

3. E. *grandiflora*, Sm. *Large White Helleborine.* "Leaves ovato-lanceolate, sessile; bracteas much longer than the erect flowers; perianth patent; lip 3-lobed, middle lobe large, oval, retuse, shorter than the rest of the perianth." *Br. Fl.* 1. *p.* 378. *E. Fl. v.* iv. *p.* 43.—E. *pallens, Sw.—Hook in Fl. Lond. N. S. t.* 76.—*Serapias grandiflora, Linn.—E. Bot. t.* 271.

Woods. Found by Mr. Geo. Whitla, in the County of Antrim, in July 1835; *Mr. Campbell. Fl.* June. ♃.—"Stem a foot or more high. *Calyx-leaves* and *petals* nearly equal, large, oblongo-ovate, white, concave, including the small *lip*, which is also white, but yellowish within. Column of fructification in this and the following species very long: in the preceding ones very short."

4. E. *ensifolia*, Sw. *Narrow-leaved White Helleborine.* Leaves lanceolate, much acuminated, subdistichous; bracteas very minute, subulate; flowers erect; lip 3-lobed, middle lobe large, roundish, obtuse, much shorter than the rest of the perianth. *Br. Fl.* 1. *p.* 379. *Hook. in Fl. Lond. N. S. t.* 77. *E. Fl. v.* iv. *p.* 44.—*Serapias ensifolia, Linn.—E. Bot. t.* 494.

Wood at Glengariff, where I first observed it, in company with the late Miss Hutchins, but without flowers, when I thought it might have been *E. pallens* of Brown in *Hort. Kew.*, and inserted it in my catalogue under that name. Miss Hutchins having since sent me flowering specimens, I am now enabled to correct my mistake. *Fl.* June. ♃.—Readily distinguished by its long lanceolate leaves, the uppermost of which is almost linear, and by its very minute bracteas.

* * * * *Anther terminal, deciduous. Pollen-masses at length waxy.*

8. Malaxis. *Swartz.* Bog-Orchis.

Perianth spreading; *lip* without a spur, very small, superior, undivided: two lateral *petals* reflexed, smaller than the *calyx-leaves*. *Column* very short. *Pollen-masses* in two pairs.—Name: μαλακις, *softness,* from the tender nature of the plant.
Gynandria. Monandria.

1. M. *paludosa*, Swartz. *Marsh Bog-Orchis.* Leaves 4—5 oval, very concave, papillose at the extremity;[*] lip concave,

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[*] These papillæ the Rev. Professor Henslow has clearly ascertained to be little bulbous *gemmæ*, as he has described and figured them in the Gardener's Magazine, *v.* 1. *p.* 442.—Mr. W. Wilson confirms this interesting statement, and further finds an *hybernaculum* formed in the autumn among the decayed leaves. Thus, independent of the *seeds*, this curious little plant has a two-fold mode of increase. *Hook.*

acute. *Br. Fl.* 1. *p.* 37. *E. Fl. v.* iv. *p.* 47. *E. Bot. t.* 729.—*Ophrys paludosa, Linn.*

Spongy bogs, in many places, but apt to be overlooked on account of its small size. In a marshy spot above Powerscourt Waterfall, and at Tittour, County of Wicklow, as well as in the southern and northern counties, but never in great quantity. *Fl.* Aug. Sept. ♃.—*Stem* two to four inches high. *Flowers* erect, minute, in a small greenish *spike*. *Calyx* of three ovate, horizontal spreading *leaves*, two of them erect, their bases embracing the base of the superior *lip*, which is thus also erect. Two lateral *petals* recurved.

ORD. 82. MELANTHACEÆ. *Batsch.* Colchicum Family.

Perianth free, petaloid, 6-partite, tubular by the union of the claws, with the segments in æstivation often involute. Stamens six: anthers often turned outwards. Ovary 3-celled, many-seeded; style trifid or tripartite; stigmas undivided. Capsule often separable into three, sometimes with the valves bearing the dissepiment in the middle. Seeds with a membranaceous testa, (neither black nor crustaceous.) Albumen dense, fleshy. —*Herbaceous plants, with fibrous, sometimes fascicled, rarely bulbous roots. Flowers either arising immediately from the root, or in panicles on tall leafy stems, or in spikes or racemes upon naked scapes.*

An acrid and highly dangerous Family, powerfully narcotic, diuretic and cathartic.

1. COLCHICUM. *Linn.* Meadow-saffron.

Perianth single, tubular, very long, rising from a spatha; *limb* campanulate, 6-parted, petaloid. *Capsules* 3-celled; *cells* united at the base.—Named from *Colchis*, where it was said to grow abundantly. *Hexandria. Trigynia.*

1. C. *autumnale*, Linn. *Common Meadow-saffron.* Leaves plane, broadly lanceolate, erect. *Br. Fl.* 1. *p.* 172. *E. Fl. v.* ii. *p.* 202. *E. Bot. t.* 133.

Meadows and pastures. Banks of the Shannon below Limerick. Meadows by the river-side, between Kilkenny and Innistiogue; *Mr. Robertson.* Near Carlow; *Mr. S. C. Hope Cooper.* *Fl.* Sept. Oct. ♃.—*Bulb* solid. The *flowers* appear in succession, rising from the bulb, with a very long, narrow tube, surrounded at the base with a membranous sheath. The *stamens* are inserted on the oblong-ovate segments of the pale purple *perianth*. *Germen* at the base of the bulb, its long thread-like *styles* running up the whole length of the tube. The *leaves* and *fruit* appear in spring, and are withered before summer. Its properties are said to be similar to those of the *officinal*

Squill, and it has been employed as a substitute for the famous *Gout-medicine,* commonly called *Eau medicinale.* It seldom produces seed in this country.

ORD. 83. AMARYLLIDEÆ. *Br.* Amaryllis Family.

Perianth of six divisions, regular, with an imbricated æstivation, the three outer segments overlapping the inner. Stamens six, inserted at the bottom of the segments of the perianth; filaments sometimes combined at the base; anthers opening inwards. Ovary 3-celled, with the cells many-seeded; sometimes (in the baccate fruits) one to two-seeded: style one: stigma 3-lobed. Pericarp either a 3-celled, 3-valved, many-seeded capsule, with the valves bearing the dissepiment in the middle, or sometimes a 1—3-seeded berry. Seeds with a testa, which is neither black nor crustaceous. Albumen fleshy. Embryo nearly straight: radicle directed to the hilum.—*Bulbous or fibrous-rooted plants, chiefly of warm countries.*

1. GALANTHUS. *Linn.* Snowdrop.

Perianth petaloid, of six pieces, the three outer spreading, three inner smaller, erect, emarginate. *Flowers* from a *spatha.*—Name from γαλα, *milk,* and ανθος, a *flower.*
Hexandria. Monogynia.

1. G. *nivalis,* Linn. *Snowdrop.* *Br. Fl.* 1. *p.* 151. *E. Fl. v.* ii. *p.* 129. *E. Bot. t.* 19.

Woods, orchards, and lawns, scarcely indigenous. *Fl.* Feb. ♃.—*Bulb* ovate. *Leaves* two, broadly linear, glaucous-green. *Flowers* solitary, drooping, handsome, rendering this plant a general favourite.

2. NARCISSUS. *Linn.* Daffodil.

Perianth superior, coloured, funnel-shaped, with a spreading 6-parted limb, and a campanulate or cup-shaped crown or *nectary,* within which are the stamens. *Flowers* from a *spatha.*—Name from ναρκη, *stupor,* in allusion to the powerful and injurious smell of its flowers. More immediately derivable from the youth *Narcissus,* who was fabled to be changed into this flower. An inhabitant sometimes of watery places by the banks of streams. *Hexandria. Monogynia.*

1. N. *Psuedo-narcissus,* Linn. *Common Daffodil.* Spatha single-flowered; nectary campanulate, erect, crisped at the margin, obsoletely 6-cleft, as long as the ovate segments of the perianth. *Br. Fl.* 1. *p.* 152. *E. Fl. v.* ii. *p.* 132. *E. Bot. t.* 17.

The true *N. Pseudo-narcissus* described above, I have not seen in a wild state in Ireland. *N. major* of *Curtis Bot. Mag.*, so common every where in lawns, and often mistaken for it, being the plant alluded to as *N. Pseudo-narcissus* in my Cat. of Irish plants. Mr. Drummond, however, enumerates it among the naturalized species found near Cork. *Fl.* March, April. ♃.—The *N. Pseudo-narcissus* of *E. Bot.* which grows in a wild situation within ten miles of Manchester, of which the late Mr. Hobson sent me plants, is never more than half the size of *N. major*, and produces flowers of a pale colour, whereas the other has the flowers of an uniform golden yellow in the single as well as the double variety, as stated by Sir J. E. Smith, in *E. Botany*.

2. N. *poeticus*, Linn. *Poetic Narcissus.* Spatha mostly single-flowered; nectary very short, concave, membranous and crenate at the margin; leaves with an obtuse keel. *Br. Fl.* 1. *p.* 152. *E. Fl. v.* ii. *p.* 131. *E. Bot. t.* 275.—*N. majalis, Curt. Mag. t.* 193, *at the end.*

Naturalized about Cork; *Mr. J. Drummond. Fl.* May. ♃.—This is the well-known *Poet's-narcissus* of the gardens, of which there is a fine double variety, and both are general favourites on account of their fragrance and beauty. I have another plant, which I received from the late Mr. George Anderson as the true *N. poeticus* of *E. Botany*, that flowers in April (fully three weeks before the other), but in other respects there is scarcely any difference. This is not to be confounded with the more slender and less elegant *N. angustifolius* of Curtis, which flowers about the same time.

3. N. *biflorus*, Curtis. *Pale Narcissus.* Spatha 2-flowered; nectary very short, concave, membranous, and crenate at the margins; leaves acutely keeled. *Br. Fl.* 1. *p.* 152. *E. Fl. v.* ii. *p.* 132. *E. Bot. t.* 276.

Fields near Dublin, abundant. *Fl.* April, May. ♃.—Similar to the last in the general form of the *flowers*, but rather smaller, and not of so pure a white, and without the coloured border to the nectary, with a less agreeable scent. Very rarely one-flowered, as is the other two-flowered.

ORD. 84. ASPHODELEÆ. *Br.* Asphodel Family.

Perianth 6-partite or 6-cleft, petaloid, regular. Stamens six, inserted upon the perianth, or hypogynous; the three that are opposite the outer leaflets sometimes dissimilar or wanting. Ovary free, 3-celled, with the cells many, rarely 2-seeded: style one; stigma undivided or shortly 3-lobed. Pericarp, in most, a 3-celled, 3-valved capsule, with the valves bearing the dissepiments: sometimes an undivided or rarely a tripartite berry. Seeds with a black crustaceous fragile testa. Albumen fleshy, including the embryo.

A bitter viscid juice prevails in many plants of this family.

1. ALLIUM. *Linn.* Onion.

Perianth inferior, petaloid, of six ovate spreading pieces. *Capsule* triquetrous. (*Flowers umbellate, arising from a two-leaved spatha.*)—Name from the Celtic *all*, which signifies acrid, burning. (*Theis.*) *Hexandria. Monogynia.*

* *Stem-leaves plane.*

1. A. ***arenarium***, Linn. *Sand Garlic.* Umbels bearing bulbs, compact, spherical; leaves linear, with cylindrical sheaths; three alternate stamens 3-cleft; leaves of the spatha short, obtuse. *Br. Fl.* 1. *p.* 153. *E. Fl. v.* ii. *p.* 134. *E. Bot. t.* 1358.

Sand-hills at Portmarnock and Feltrum-hill. South Isles of Arran; *Messrs. Thomson and Ball. Fl.* July. ♃.—*Stem* two to three feet high, leafy below, rounded, glabrous. *Heads* dense, with purple *flowers*, rather small. *Spatha* often of three very short, ovate, obtuse segments.

2. A. ***carinatum***, Linn. *Mountain Garlic.* Umbels bearing bulbs, lax; leaves linear, keeled; stamens all simple; leaves of the spatha very long, unequal. *Br. Fl.* 1. *p.* 154. *E. Fl. v.* ii. *p.* 135. *E. Bot. t.* 1658.

In a field on the north side of the Royal Canal, above Phibsborough-bridge; *Dr. Scott. Fl.* July. ♃.—Three feet high. *Stems* rounded, glabrous, leafy below. *Flowers* upon long wavy peduncles, pale brownish-white.

* * *Stem-leaves rounded.*

3. A. ***vineale***, Linn. *Crow Garlic.* Umbel bearing numerous bulbs; leaves fistulose; stamens deeply 3-cleft. *Br. Fl.* 1. *p.* 154. *E. Fl. v.* ii. *p.* 137. *E. Bot. t.* 1974.

Too common in meadows and pastures about Dublin. *Fl.* June. ♃.—*Stem* one and a half to two feet high. *Bulbs* numerous. *Spatha* of two rather small deciduous *leaves*. *Flowers* on longish peduncles, which are thickened upwards, few, erect, reddish, green on the keels, shorter than the *stamens*, whose *filaments* as well as the anthers are protruded.

* * * *Leaves all radical.*

4. A. ***ursinum***, Linn. *Broad-leaved Garlic or Ramsons.* Umbel nearly plane; leaves ovato-lanceolate, on footstalks; scape triangular. *Br. Fl.* 1. *p.* 154. *E. Fl. v.* ii. *p.* 137. *E. Bot. t.* 122.

Woods and hedge-banks, frequent. *Fl.* June. ♃.—*Flowers* white. *Umbels* without *bulbs*, level topped. *Spatha* of two ovato-lanceolate leaves.

2. SCILLA. *Linn.* Squill.

Perianth inferior, of six leaves, petaloid, spreading and deciduous. *Filaments* filiform, glabrous, inserted at the base of the perianth. (*Flowers racemed.*)—Name, from *σκυλλω*, to *injure:* in Arabic also, *ásgyl.* The root of *S. maritima* is said to be highly poisonous, and a valuable medicine.
Hexandria. Monogynia.

1. S. *verna*, Huds. *Vernal Squill.* Bulb coated; raceme in an hemispherical corymb, few-flowered; bracteas lanceolate, obtuse; leaves linear, channelled. *Br. Fl.* 1. *p.* 156. *E. Fl. v.* ii. *p.* 145. *E. Bot. t.* 23.

Maritime situations. On Howth, Ireland's Eye, Killiney-hill, and other places on the eastern coast. *Fl.* April. ♃.—*Plant* four to five inches high. *Leaves* few, nearly as long as the scape. *Flowers* fragrant, deep blue.

3. HYACINTHUS. *Linn.* Hyacinth.

Perianth inferior, of one piece, petaloid, 6-cleft, or 6-parted, tubular, reflexed at the extremity. *Stamens* inserted upon the segments, included.—Named from the youth *Hyacinthus*, who, being killed by Apollo, was changed by him into a plant, whose foliage bore the initials of his name. Our only British species, having no such mark or figure, was hence called *non-scriptus.* *Hexandria. Monogynia.*

1. H. *non-scriptus*, Linn. *Wild Hyacinth or Hare-bell.* Flowers in a raceme, drooping; perianth 6-partite, the extremities reflexed; bracteas in pairs. *Br. Fl.* 1. *p.* 156.—*Scilla nutans*, *E. Bot. t.* 377. *E. Fl. v.* ii. *p.* 147.

Woods, copses, and groves, frequent. *Fl.* May. ♃.—*Flowers* blue, varying with white or more rarely rose-coloured flowers. *Leaves* long, linear, channelled, acuminate. *Scape* one foot high, with two bracteas at the base of each short pedicel. The habit of this plant, as Dr. Hooker remarks, is surely more the habit of the *H. orientalis* than of any true *Scilla.*

ORD. 85. SMILACEÆ. *Br.* Smilax Family.

Flowers perfect or diœcious. Perianth free, petaloid, 6-parted. Stamens six, inserted near the base upon the laciniæ, rarely hypogynous. Ovary 3-celled, with the cells 1- or many-seeded: style mostly trifid: stigmas as many as there are styles, or divisions of the styles. (The parts of the flower are quaternary in

Paris.) Berry globose. Seed with a membranaceous (not black nor crustaceous) testa. Albumen between fleshy and cartilaginous. Embryo frequently remote from the hilum.—*Herbaceous plants or under-shrubs, often with a tendency to climb. Leaves with parallel veins.*

1. Convallaria. *Linn.* Lily of the Valley.

Perianth inferior, petaloid, deciduous, 6-cleft, globose or cylindrical. *Berry* 3-celled. *Seeds* 1—2 in each cell.—Name; *convallis*, a *valley*, from the locality of the species.

Hexandria. Monogynia.

1. C. *majalis*, Linn. *Lily of the Valley.* Scape semicylindrical; leaves two, ovato-lanceolate, radical; flowers racemed, globoso-campanulate, drooping. *Br. Fl.* 1. *p.* 152. *E. Fl. v.* ii. *p.* 154. *E. Bot. t.* 1035.

Woods, scarcely indigenous. In a wood at Chaffpool, near Ballymoate; *Mrs. Armstrong. Fl.* May. ♃.—*Flowers* very pure white, fragrant, segments curved back. *Berries* red, globose.

2. Paris. *Linn.* Herb Paris.

Calyx of four sepals. *Petals* four. *Cells* of the *anthers* fixed one on each side the middle of a subulate *filament. Berry* 4-celled; each *cell* with several *seeds* in two rows.—Named, it is said, from *par*, *paris*, *equal*, on account of the regularity of its leaves and flowers.

Octandria. Tetragynia.

1. P. *quadrifolia*, Linn. *Common Herb Paris.* Leaves ovate, four in a whorl. *Br. Fl.* 1. *p.* 184. *E. Fl. v.* ii. *p.* 241. *E. Bot. t.* 7.

Moist and wet shady woods. Ross Island, Killarney, ("*Smith's Kerry.*") *Fl.* May, June. ♃.—*Stem* one foot high, with four, rarely five, whorled, large, ovate, acute *leaves* at its summit, the rest leafless. *Flower* single, terminal, on a foot-stalk about two inches long. *Calyx* of six linear-lanceolate, green *leaflets*; *petals* similar to these, but narrower and more yellow. *Roots* purgative. *Berry* esteemed poisonous, but it has been employed in curing inflammation in the eyes.

Ord. 86. BUTOMEÆ. *Rich.* Flowering-rush Family. [illegible]

Perianth of six divisions, in two rows; outer sometimes herbaceous, inner petaloid. Stamens definite or indefinite. Ovaries three to six, or more, more or less free or united: styles and stigmas of the same number. Follicles many-seeded, distinct and rostrate, or united into a single mass. Seeds very minute, attached to the whole of the inner surface of the pericarp. Albumen none. Embryo straight or curved; its radicle next the hilum.—*Aquatic plants. Leaves very vascular, often yielding a milky juice, with parallel veins. Flowers in umbels, conspicuous, purple or yellow.*

1. Butomus. *Linn.* Flowering-rush.

Perianth single, coloured, 6-parted, inferior. *Capsules* six, many-seeded. *Seeds* fixed to the inner lining of the capsule. —Named from βους, *an ox,* and τεμνω, *to cut,* because the sharp leaves injure the mouths of cattle that browze upon them. *Enneandria. Hexagynia.*

1. B. *umbellatus,* Linn. *Common Flowering-rush.* Leaves linear-subulate, trigonous; spatha of three leaves. *Br. Fl.* 1. *p.* 185. *E. Fl. v.* ii. *p.* 245. *E. Bot. t.* 651.

Ditches, and by the sides of rivers. Banks of the Shannon at Castle-Connel, and other places near Limerick; abundant in ditches near Corrofin, and other places in the County of Clare; in a ditch near Lord Cloncurry's demesne, County of Kildare. It has also been observed by Doctor H. Hincks and the late Mr. Thomas Drummond, near Fermoy-bridge, County of Cork. *Fl.* June, July. ♃.—*Root* white, tuberous. *Leaves* all radical, two to three feet long, linear, acuminate, acutely trigonous, more or less spirally twisted at the extremity. *Scape* longer than the *leaves,* rounded. *Umbel* of many rose-coloured *flowers,* on pedicels about four inches long, with scariose sheathing *bracteas* at the base; and these having a triphyllous membranous *spatha* or *involucre* beneath them. *Germens* ovate, compressed. *Style* about as long as the *germen,* with a recurved cleft *stigma. Seeds* parietal, or fixed to the inner surface of the pericarp, extremely small.—A highly ornamental plant.

Ord. 87. RESTIACEÆ. *Br.* Pipe-wort Family.

Perianth free, two to six-partite, rarely wanting. Stamens definite, one to six, with from two to three inserted upon the four to six-partite perianth, and opposite the inner segments; anthers usually 1-celled. Ovary 1-celled, the cells 1-seeded; ovules pendulous. Pericarp capsular, or nut-like. Seed inverted. Albumen of the same shape with the seed. Embryo lentiform, on the outside of the albumen, in the lower extremity of the seed, remote from the hilum.—*Herbaceous or somewhat shrubby plants. Leaves simple, narrow or none. Culms naked or often sheathing; the sheaths cleft on one side, with equitant margins. Flowers usually aggregated, spiked or capitate, separated with bracteas, and generally monœcious.*

1. Eriocaulon. *Linn.* Pipewort.

Flowers collected into a compact, scaly *head.* *Barren fl.* in the centre. *Perianth* single, four to six-cleft, the *inner segments* united to their summit. *Stamens* four to six. *Fertile fl.* in the circumference. *Perianth* single, deeply 4-parted. *Style* one. *Stigmas* two to three, *Capsules* two to three-lobed, two to three-celled. *Cells* 1-seeded.—Name; *εριον, wool,* and *καυλος, the stem;* in allusion to the downy stems of the species first known. *Monœcia. Hexandria.*

1. E. *septangulare,* With. *Jointed Pipewort.* Scapes striated, longer than the cellular, compressed, subulate, glabrous leaves; flowers four-cleft, hairy at the extremities as well as the scales; stamens four; capsule 2-celled. *Br. Fl.* 1. *p.* 404. *E. Fl. v.* iv. *p.* 140. *E. Bot. t.* 733.

Lakes in Cunnamara, where it was first observed by Doctor Wade, abundant. *Fl.* Aug. ♃.—*Roots* creeping, and throwing out innumerable, white, curiously articulated *fibres,* which penetrate deep into the mud. *Leaves* pellucid, beautifully cellular, as is the *scape.* *Head* of numerous, compact, minute *flowers;* each with an obovate, membranous, concave *scale,* nearly as long as itself.

Ord. 88. JUNCEÆ. *Juss. (in part.)* Rush Family.

Flowers perfect or separated. Perianth free, of six divisions, somewhat glumaceous. Stamens six, inserted at the base of the segments of the perianth; sometimes three, and opposite the exterior segments: anthers 2-celled. Ovary 1—3-celled, 1- or many-seeded, or 1-celled and 3-seeded: stigmas generally three, sometimes one. Pericarp capsular, 3-valved, with the valves bearing the dissepiments in the middle, sometimes without valves, and by imperfection, 1-seeded. Seed with a testa, which is neither black nor crustaceous. Albumen dense and fleshy or cartilaginous. Embryo included.—*Herbaceous plants, very generally distributed, with fascicled or fibrous roots. Leaves flat, with parallel veins, or fistular and harsh. Flowers generally brown or greenish; yellow in* Narthecium.

1. Juncus. *Linn.* Rush.

Perianth inferior, of six leaves, glumaceous. *Capsules* 3-celled, 3-valved, valves with the seed-bearing dissepiments in their middle. *(Leaves rigid, mostly rounded, rarely plane, glabrous.)*—Name from *jungo, to join,* the leaves and stems of this genus having been employed as cordage.

Hexandria. Monogynia.

* *Leaves none. Barren scapes resembling leaves. Panicle lateral. Flowers scattered.*

1. J. *glaucus*, Sibth. *Hard Rush.* Scape deeply striated, rigid; panicle much branched; leaves of the perianth lanceolato-subulate, nearly equal, longer than the elliptical capsule. *Br. Fl.* 1. *p.* 160. *E. Fl. v.* ii. *p.* 160. *E. Bot. t.* 665.

Wet pastures and low meadows. *Fl.* July. ♃.—*Root* creeping. *Scapes* about two feet high, glaucous, rigid, at the base covered with deep purple-brown, membranaceous, shining *sheaths*. *Panicle* lax, erect. *Flowers* slender, pale brown, with a broad green line down the middle of each leaflet of the perianth. *Bracteas* also small and acuminate.

2. J. *effusus*, Linn. *Soft Rush.* Scapes very faintly striated, soft; panicle loose, very much branched, spreading; leaflets of the perianth lanceolate, nearly acuminate, rather longer than the obovate obtuse capsule. *Br. Fl.* 1. *p.* 160. *E. Fl. v.* ii. *p.* 162. *E. Bot. t.* 836.

Wet marshy grounds, common. *Fl.* July. ♃.—Distinguishable from the last by its soft, pliable, almost smooth (scarcely striated) *scapes*, and spreading, denser, and shorter *panicles*.

3. J. *conglomeratus*, Linn. *Common Rush.* Scapes very faintly striated, (soft); panicle much branched, very dense, globose; leaflets of the perianth lanceolate, acute, nearly equal, about as long as the broadly ovate very obtuse capsule; stamens three. *Br. Fl.* 1. *p.* 160. *E. Fl. v.* ii. *p.* 160. *E. Bot. t.* 1836.

Wet and marshy ground, frequent. *Fl.* July. ♃.—*Panicle* very dense. *Scape* resembling the last. Wicks of candles are made of the pith of this as well as of the last species.

* * *Leaves none. Barren scapes resembling leaves. Panicle terminal. Flowers aggregated.*

4. J. *maritimus*, Sm. *Lesser sharp Sea Rush.* Barren scapes and outer bracteas pungent; panicle very compound; clusters 4—8-flowered; leaflets of the perianth equal, lanceolate, acute, as long as the elliptical mucronated capsule. *Br. Fl.* 1. *p.* 161. *E. Fl. v.* ii. *p.* 159. *E. Bot. t.* 1725.—*J. acutus, β. Linn.*

Sandy salt marshes about Kingstown, Bullock, and various other places. Near Cork; *Mr. J. Drummond. Fl.* Aug. ♃.—*Scapes* two to three feet high, stiff, and very tough. Outer *bractea*, or portion that rises above the panicle, broad and membranous at the base. *Calyx-leaves* acute, with a membranous wavy border, often jagged towards the point.

5. J. *acutus*, Linn. *Great sharp Sea Rush.* Barren scapes and outer bracteas pungent; panicles very compound, mostly

compact; clusters 2—4-flowered; leaflets of the perianth equal; interior ones with a broad membranous margin at the apex, shorter than the broadly ovate, suddenly acuminated capsule. *Br. Fl.* 1. *p.* 161. *E. Fl. v.* ii. *p.* 158. *E. Bot. t.* 1614.

Sandy sea-shore near Arklow, where it was first observed by Mr. Hodgens of Dunganstown Nursery. *Fl.* July. ♃.—Nearly double the size of the last, rooting deeply into the sand. *Scapes* erect, straight, simple, round, smooth, leafless, stiff, and very strong, with a sharp rigid point, turned a little aside by the *panicle*, and rising a little above it.

* * * *Stems leafy. Leaves rounded or subcompressed, and distinctly jointed internally. Panicle terminal. Flowers aggregated or fascicled.*

6. J. *acutiflorus*, Ehrh. *Sharp-flowered jointed Rush.* Leaves subcompressed; panicle very compound, pyramidal; clusters 5—6-flowered; leaflets of the perianth unequal, lanceolate, very acute, nearly as long as the narrow, ovate, subacuminate capsule. *Br. Fl.* 1. *p.* 161. *E. Fl. v.* ii. *p.* 174. *E. Bot. t.* 2143.—*J. articulatus*, *E. Bot. t.* 238.

Bogs, very common. *Fl.* June—Aug. ♃.—One to two feet high· erect. *Leaves* three to four on a stem, distinctly nodoso-articulate when dry. *Panicle* diffuse, in fruit spreading. *Flowers* several together, greenish-brown. *General bracteas* short, membranaceous, scarcely leafy. *Capsules* pale-coloured.

7. J. *lampocarpus*, Ehrh. *Shining-fruited jointed Rush.* Stem ascending, and as well as the leaves compressed; panicle compound, spreading; clusters 4—6 or 8-flowered; leaflets of the perianth equal, rather obtuse, shorter than the acute, triquetrous, oblong-lanceolate capsule. *Br. Fl.* 1. *p.* 162. *E. Fl. v.* ii. *p.* 175. *E. Bot. t.* 2143.

Boggy ground and watery places, frequent. *Fl.* July, Aug. ♃.—Very similar to the last; but with large *flowers*, and deep brown shining capsules. The var. β. of *Hooker*, (*J. nigritellus*, *E. Bot. Suppl. t.* 3643,) has more numerous *flowers* in each cluster or head, sharper leaflets to the *perianth*, pale capsules, and it seems also to unite *J. acutiflorus* with *J. lampocarpus*. *Hooker.*

8. J. *obtusiflorus*, Ehrh. *Blunt-flowered jointed Rush.* Stem and leaves erect, rounded; panicle very compound, spreading, and divaricated; clusters 3—6-flowered; leaflets of the perianth equal, rather obtuse, about equal in length with the oval trigonous capsule. *Br. Fl.* 1. *p.* 162. *E. Fl. v.* ii. *p.* 176. *E. Bot. t.* 2144.

Boggy grounds, less frequent than the two last. *Fl.* July. ♃.—Larger than the preceding. *Leaves* rigid: *heads* small. *Leaves* of the *calyx* pale-brown. *Capsule* obovate, light brown. *Smith.*

9. J. *uliginosus*, Sibth. *Lesser Bog-jointed Rush.* Stem erect, and often swollen at the base, or decumbent and rooting;

leaves bristle-shaped; panicle nearly simple, irregular; clusters few or many-flowered; leaflets of the perianth equal, oblong, subacute, nearly as long as the elliptical capsule. *Br. Fl.* 1. *p.* 162. *E. Fl. v.* ii. *p.* 169. *E. Bot. t.* 801.—*J. subverticillatus, Wulf. E. Fl. v.* ii. *p.* 170.

Boggy and swampy places, and often partly floating in small pools. *Fl.* Aug. ♃.—A very variable plant, depending much for its appearance on soil and situation. When growing in water, often viviparous.

* * * * *Stems leafy. Leaves plane or grooved above, not distinctly jointed.*

10. J. *compressus,* Jacq. ***Round-fruited Rush.*** Stem erect, compressed; leaves linear, setaceous, grooved; panicle terminal, compound, subcymose, generally shorter than the bracteas; capsules roundish, ovate, longer than the obtuse, incurved leaflets of the perianth. *Br. Fl.* 1. *p.* 163. *E. Fl. v.* ii. *p.* 165.—*J. bulbosus, E. Bot. t.* 934.

β. panicle nearly simple, few-flowered, longer than the bracteæ. *Br. Fl.* 1. *p.* 163.—*J. cænosus, Bich. in Linn. Trans. E. Fl. v.* ii. *p.* 166. *Bich. in E. Bot. Suppl. t.* 2680.

Wet marshy places. *β*. in salt marshes, frequent. *Fl.* Aug. ♃.—I concur with Doctor Hooker in uniting *J. cænosus* of Bicheno with *J. compressus.*

11. J. *bufonius,* Linn. ***Toad Rush.*** Stem dichotomous above, panicled; leaves filiform, setaceous, grooved; flowers solitary, unilateral, mostly sessile; capsules elliptical, ovate, much shorter than the acuminated leaflets of the perianth. *Br. Fl.* 1. *p.* 164. *E. Fl. v.* ii. *p.* 168. *E. Bot. t.* 802.

Frequent in moist, or watery places, especially such as have been over-flowed with water in winter. *Fl.* Aug. ⊙.—From four to six inches high. *Leaves* few, slender, only one on the stem, generally near the middle. Whole plant very pale-coloured. *Flowers* green, with white membranous margins to the leaflets of the perianth.

* * * * * *Leaves all radical. Flowers terminal.*

12. J. *squarrosus,* Linn. ***Heath Rush.*** Leaves setaceous, (rigid,) grooved; panicle terminal, elongated, compound; capsules elliptical, ovate. *Br. Fl.* 1. *p.* 164. *E. Fl. v.* ii. *p.* 164. *E. Bot. t.* 933.

Moory and heathy ground, abundant. *Fl.* June, July. ♃.—Whole plant exceedingly rigid, six inches to a foot high. *Leaves* subsecund, about half as long as the scape. *Bracteas* lanceolate, membranaceous. *Leaflets* of the perianth ovato-lanceolate, glossy-brown, with a pale line down the middle, scariose at the edges.

2. Luzula. *De Cand.* Wood-rush.

Perianth inferior, of six leaves, glumaceous. *Capsules* 1-celled, 3-valved: valves without dissepiments. *Seeds* three, at the bottom of the cell. (*Leaves soft, plane, generally hairy.*)—Name; the *Gramen Luzulæ* of Bauhin. *Luzula*, Smith tells us, is altered from *lucciola* or *luzziola*, a *glow-worm;* because the heads of flowers, wet with dew, and sparkling by moonlight, gave the elegant Italians an idea of those brilliant insects. *Hexandria. Monogynia.*

1. L. *sylvatica*, Bich. *Great hairy Wood-rush.* Leaves hairy; panicle subcymose; peduncles elongated, of about three flowers; leaflets of the perianth aristate, as long as the capsule. *Br. Fl.* 1. *p.* 166. *E. Fl. v.* ii. *p.* 181.—*Juncus sylvaticus, Huds.*—*E. Bot. t.* 737.

Woods, hilly places, and on mountains, frequent. *Fl.* May, June. ♃.—One to a foot and a half high. *Leaves* broad, shining, striated. *Floral-bracteas* ciliated. *Capsules* with a very sharp point, deep brown. *Seeds* elliptic-ovate, with scarcely any crested appendage on the top.

2. L. *pilosa*, Willd. *Broad-leaved hairy Wood-rush.* Leaves hairy; panicle subcymose; peduncles 1-flowered, bent back; leaflets of the perianth acuminate, rather shorter than the obtuse capsule. *Br. Fl.* 1. *p.* 166. *E. Fl. v.* ii. *p.* 178.—*Juncus pilosus, Linn.*—*E. Bot. t.* 736.

Woods and shady places, frequent. *Fl.* April, May. ♃.—Much smaller than the last, with the flowers standing singly on the panicle. *Seeds* with a curved appendage at the top.

3. L. *campestris*, Br. *Field Wood-rush.* Leaves hairy; spikes sessile and pedunculated; leaflets of the perianth acuminate, longer than the obtuse capsule. *Br. Fl.* 1. *p.* 166. *E. Fl. v.* ii. *p.* 181.—*Juncus campestris, Linn.*—*E. Bot. t.* 672.

β. taller, with the spikes of flowers collected into an almost orbicular head. *Hook. Scot.* 1. *p.* 110.—*L. congesta, Lej.*—*E. Fl. v.* ii. *p.* 181.

Dry barren pastures. β. on Feather-bed mountain, County of Wicklow. *Fl.* April, May. ♃.—From four to eight inches, or even a foot high. *Flowers* collected into ovate or oblong, nearly erect *spikes*, of a reddish brown colour, sometimes very pale. In β. the *spikes* are nearly all sessile.

3. Narthecium. *Huds.* Bog-Asphodel.

Perianth inferior, petaloid, of six linear-lanceolate, spreading pieces. *Stamens* woolly. *Germen* pyramidal. *Capsules* 3-celled, 3-valved. *Seeds* with an appendage at each extremity.—Name from ναρθηξ, a *rod*, probably from the elongated straight raceme of flowers.

Hexandria. Monogynia.

1. N. *ossifragum*, Huds. *Lancashire Bog-Asphodel.* Leaves linear, uniform; pedicels with bracteas above the middle; stamens much shorter than the perianth. *Br. Fl.* 1. *p.* 158. *E. Fl. v.* ii. *p.* 151. *E. Bot. t.* 535.

Wet places in moors and on mountains, frequent. *Fl.* July, Aug. ♃.—Six to eight inches high, decumbent at the base. *Roots* creeping. *Leaves* all radical, uniform, equitant, striated, about half as long as the *scape*, which has many scales or bracteas. *Seeds* with a very long arillus, forming an appendage to each extremity, attached to a longitudinal receptacle on each valve; the receptacles form the dissepiments.

SUBCLASS II. GLUMACEÆ. *Lindl.*

Flowers without any perianth (unless the bristles in some *Cyperaceæ*, or the curious urceolate covering to the ovary in *Carex*, can be considered such); but enclosed within imbricated, membranous, or chaffy scales or bracteas.

ORD. 89. GRAMINEÆ. *Juss.* Grass Family.

Flowers perfect, sometimes monœcious or polygamous. Glume (*calyx, L.*) generally 2-valved, 1—2-flowered, or many-flowered in a distichous manner, upon a common rachis. *Paleæ* (Perianth, *Br.* Corolla, L.) resembling the glume, generally 2, rarely 1-valved: the valves dissimilar, the outer often keeled, 1—3 or many-nerved, awned or awnless, the inner one generally 2-nerved and awnless, rarely with two awns; sometimes wanting. Scales two, (or one,) hypogynous, succulent, minute, generally collateral, and situated between the exterior valve of the *palæ* and the stamens, sometimes opposite, and alternating with the valves; sometimes wanting. Stamens hypogynous, definite (*Pariana* excepted), generally 3, sometimes 1—2, or 6, rarely 4: anthers 3-celled, forked at each extremity. Ovary 1, 1-seeded. Styles generally 2, distinct or combined below, sometimes 1—3. Stigmas feathery or hispid. Pericarp adnate with the seed (*caryopsis*, Rich.), membranaceous. Albumen farinaceous. Embryo in the base of the outside of the albumen, monocotyledonous; the cotyledon scutelliform, fleshy. Plumule naked, included in a peculiar sheath, its primary leaflets gradually changing into perfect leaves.—*Plants of every part of* *the world where there is any phænogamous vegetation, with fibrous roots. Culms cylindrical, fistulose, articulated; often simple and herbaceous, occasionally branched, rarely frutescent. Leaves alternate, from each joint, sheathing, the sheath cleft on one side. Flowers small, panicled or spiked.*

A highly important group, perhaps the most valuable of all the Natural Orders: none renders such numerous services to mankind. Bread-corn is the "staff of life." The foliage of grasses is the chief food for our cattle. The Bamboo (*Arundo Bambos, L.*), the giant of the Family, whose stems or culms attain to a height of one hundred feet in the short space of a few months, furnishes materials for houses and various utensils: the Sugar Cane (*Saccharum officinarum*) gives us sugar.

* *Flowers panicled. (Panicle often very compact, so as to appear spiked.)*

† *Calyx single-flowered.*

1. ALOPECURUS. *Linn.* Fox-tail-grass.

Calyx 2-valved; valves nearly equal, mostly connate at the base. *Corolla* of one valve, with an awn rising from the base.—Name from αλωπεξ, a *fox*, and ουρα, a *tail.*
Triandria. Digynia.

1. A. *pratensis*, Linn. *Meadow Fox-tail-grass.* Culm erect, smooth; panicle spiked, cylindrical, obtuse; calyx-glumes lanceolate, acute, hairy, connate at the base; awn twice the length of the corolla. *Br. Fl. ed.* 3. *p.* 33. *E. Fl. v.* i. *p.* 78. *E. Bot. t.* 759.

Meadows and pastures, common. *Fl.* May, June. ♃.—One and a half to two feet high; an excellent early grass, deservedly in great repute. *Panicle* of a yellowish green colour, with silvery hairs.

2. A. *geniculatus*, Linn. *Floating Fox-tail-grass.* Culm ascending, bent at the joints; panicle spiked, cylindrical, obtuse; calyx-glumes united at the base, obtuse, slightly hairy and fringed; awn twice as long as the corolla. *Br. Fl. ed.* 3. *p.* 33. *E. Fl. v.* i. *p.* 89. *E. Bot. t.* 1250.

In pools and wet marshy places, sometimes on dry ground. *Fl.* July, Aug. ♃.

2. PHALARIS. *Linn.* Canary-grass.

Calyx of two erect, carinated valves, larger than the two-valved, at length, indurated *corolla*, which is accompanied at the base by one or two valves of other imperfect florets.

Fruit invested with the hardened corolla.—Named from φαλος, *shining*, *Canary-seed* being very glossy.
Triandria. Digynia.

1. P. *Canariensis*, Linn. *Cultivated Canary-grass.* Panicle spiked, ovate; calyx-glumes boat-shaped, entire at the point, accompanied by the single valves of two other florets. *Br. Fl. ed.* 3. *p.* 34. *E. Fl. v.* i. *p.* 74. *E. Bot. t.* 1310.

Naturalized in some places, where the seeds have been introduced with manure. *Fl.* July. ⊙.—One to two feet high, glaucous. *Leaves* broad. *Spikes* handsome, composed of large, pale yellow-green *calyx-glumes*, marked with deeper lines, and singularly keeled at the back.

2. P. *arundinacea*, Linn. *Reed Canary-grass.* Panicle erect, its branches patent; florets clustered, secund, imperfect floret consisting of a small hairy valve. *Br. Fl. ed.* 3. *p.* 34. *E. Fl. v.* i. *p.* 74. *E. Bot. t.* 402.—*Arundo colorata, Fl. Br.*—*Digraphis arund. Trin. and Lindl.*

Ditches, sides of lakes and rivers, common. *Fl.* July. Aug. ♃.—Very different from the last in general habit, but not in essential character. *Panicle* large, six to eight inches long, often brownish or purplish-green. Excellent for securing river-banks; its roots are creeping, and here and there tufted.

3. Ammophila. *Host.* Sea-reed.

Panicle spiked. *Calyx* of two, nearly equal, keeled valves, longer than the *corolla*, surrounded at the base by a tuft of hairs.—Named from αμμος, *sand*, and φιλος, a *lover*.
Triandria. Digynia.

1. A. *arundinacea*, Linn. *Common Sea-reed, Marum, or Mat-weed.* Panicle cylindrical, acuminate; glumes acute; hairs one-third the length of the corolla. *Br. Fl. ed.* 3. *p.* 34.—*Ammophila arenaria, Lindl. Syn. p.* 303.—*Arundo arenaria, E. Bot. t.* 520. *E. Fl. v.* i. *p.* 171.

Sandy sea-shores, frequent. *Fl.* July. ♃.—*Root* much creeping. *Leaves* long, narrow, rigid, involute, glaucous. *Culm* two to three feet high. *Corolla* far more rigid than the *calyx*, the larger *valves* with a small sinus below the point. Extensively employed by Lord Palmerston, on the coast near Ballyshannon, for preventing the inroads of the sea.

4. Phleum. *Linn.* Cat's-tail-grass.

Panicle compact. *Calyx* of two valves, nearly equal, acuminate, or mucronato-aristate, including the *corolla* of two awnless valves. *Seed* free.—Named from φλεος, or φλεως, formerly applied, as is supposed, to the *Reed-mace* (*Typha*), to which our grass bears some distant resemblance.
Triandria. Digynia.

1. P. *pratense*, Linn. *Common Cat's-tail-grass, Timothy-grass.* Panicle spiked, cylindrical; glumes truncated, mucronate, aristate, ciliated at the back, longer than the awn. *Br. Fl. ed.* 3. *p.* 34. *E. Fl. v.* i. *p.* 75. *E. Bot. t.* 1076.

Low meadows and pastures, common. *Fl.* June. ♃.—*Root* sometimes tuberous, when it is the *P. nodosum, Willd.*—*Calyx-glumes* compressed, keeled, with a dorsal green nerve running into a spreading awn, scarcely half so long as the valve.

2. P. *arenarium*, Linn. *Sea Cat's-tail-grass.* Panicle spiked, oblongo-ovate; calyx-glumes lanceolate, acute, ciliated at the back. *Br. Fl. ed.* 3. *p.* 35.—*Phalaris arenaria, E. Fl. v.* i. *p.* 78. *E. Bot. t.* 222.

On loose sand near the sea. *Fl.* May, June. ⊙.—*Culms* five to six inches high, many from the same root. *Corolla* twice as short as the *calyx*, membranous, truncated.

5. MILIUM. *Linn.* Millet-grass.

Panicle spreading. *Calyx* 2-valved, flattish, herbaceous, rather acute, longer than the *corolla*. *Fruit* invested with the permanent hardened *corolla*.—Named either from *mille*, a thousand, on account of its fertility; or, according to Theis, from the Celtic *mil*, a *stone*, from the hardness of its fruit. *Triandria. Digynia.*

1. M. *effusum*, Linn. *Spreading Millet-grass.* Panicle glabrous, its branches subverticillate; leaves lanceolate; ligule obtuse. *Br. Fl. ed.* 3. *p.* 36. *E. Fl. v.* i. *p.* 87. *E. Bot. t.* 1006.

Moist shady woods. Plentiful at the Dargle and near Powerscourt Waterfall, &c. *Fl.* June. ♃.—*Culms* three to four feet high. *Panicle* much spreading.

6. CALAMAGROSTIS. *Adans.* Small-reed.

Panicle loose. *Calyx* of two valves, longer than the two valves of the *corolla*, which is surrounded by hairs at the base, and has the outer valve awned.—Named from *καλαμος*, one of the *Palms*, and *αγροστις*, a genus of grasses; a barbarous denomination, and only admissible on the ground of its being now generally adopted. *Triandria. Digynia.*

1. C. *Epigejos*, Roth. *Wood Small-reed.* Calyx-glumes subulate, their keel rough; panicle erect, close; flowers crowded, unilateral; corolla with a dorsal awn nearly as long as the calyx. *Br. Fl. ed.* 3. *p.* 36.—*Arundo Epigejos, Linn. E. Bot. t.* 403. *E. Fl. v.* i. *p.* 169.

In shady moist places. Formoyle-hill, parish of Dunboe, County of Derry; *Mr. D. Moore. Fl.* July. ♃.—*Culm* about four feet high, less stout and with narrower *leaves* and more compact *panicles* than *Arundo Phragmites*, to which it bears some resemblance.

7. AGROSTIS. *Linn.* Bent-grass.

Panicle loose. *Calyx* of two unequal glumes, longer than the *corolla*. *Corolla* of two unequal valves; the inner sometimes wanting, the outer with or without an awn. *Seed* free. —Name given by the Greeks to Grasses, from *αγρος*, a *field*, because they are so abundant in open places.

Triandria. Digynia.

1. A. *canina*, Linn. *Brown Bent-grass.* Branches of the panicle long, slender, erecto-patent; calyx-valves unequal, lanceolate, rough at the keel; corolla of one valve, with a dorsal awn from below the middle; leaves linear. *Br. Fl. ed.* 3. *p.* 37. *E. Fl. v.* i. *p.* 90. *E. Bot. t.* 1856.

Moist heaths and moory places, abundant. *Fl.* June, July. ♃.—Very variable in the size and colour of its flowers, purple or green, and in the length of the dorsal *awn*, which is sometimes included within the calyx, at other times considerably exserted.

2. A. *vulgaris*, With. *Fine Bent-grass.* Branches of the panicle smoothish, its branchlets diverging; outer valve of the corolla 3-nerved; ligule extremely short and truncate. *Br. Fl. ed.* 3. *p.* 38. *E. Fl. v.* i. *p.* 91. *E. Bot. t.* 1671.—*β. aristata;* outer valve of the corolla awned. *A. canina*, *With.*—*γ. pumila;* scarcely three inches high. *A. pumila*, *Lightf. Scot.*

Meadows, pastures, and banks, common everywhere. *Fl.* June, July. ♃.—*Root* tufted, somewhat creeping. *Stem* twelve to twenty-four inches high, unless in *γ*. *Panicle* purplish, very delicate, slender, uniformly divaricated, with elastic, finely capillary branches, their lower part smooth; upper more or less rough, but the ultimate stalks are smooth. *Calyx-glumes* lanceolate, smooth, shining, rough on the back. *Corolla-glume* of two thin, delicate, membranous, unequal *valves*.

3. A. *alba*, Linn. *Marsh Bent-grass.* Branches of the panicle hispid; branchlets patent; outer valve of corolla five-nerved; ligule oblong. *Br. Fl. ed.* 3. *p.* 38. *E. Fl. v.* i. *p.* 93. *E. Bot. t.* 1189.—*A. stolonifera*, *Linn.* *E. Bot. t.* 1532.

Pastures, road-sides, and near the sea on a clay soil, and even on the gravelly and sandy shore. *Fl.* July, Aug. ♃.—*Plant* stouter than the last, and generally taller. *Culms* ascending, often throwing out runners to a great length, which root at each joint, and produce new plants. *Calyx-glumes* as in *A. vulgaris*, as are those of the corolla; but the outer valve has five nerves and as many teeth, and the inner one is only faintly two to three-nerved at the base, nearly entire, and obtuse at the extremity.—This is the famous Fiorin of Doctor Richardson, of which I saw in Cunnamara, many years ago, excellent crops of hay on reclaimed bog, where it had been introduced three years previously, along with sand from the shore, used there as a manure for potatoes as the first crop, and barley or oats the year following.

† † *Calyx two- or rarely three-flowered.*

8. CATABROSA. *Beauv.* Whorl-grass.

Panicle spreading. *Calyx* of two valves, membranaceous, very obtuse, much shorter than the spikelets, two or three-flowered, often with a fourth imperfect floret. *Calyx* two-valved, coriaceous, membranous only at the extremity, ribbed, truncated, awnless, erose, nearly equal.—Named from *καταβρωσις, a gnawing,* from the erose extremity of the glumes.
Triandria. Digynia.

1. C. *aquatica,* Beauv. *Water Whorl-grass.* Panicle with whorled patent branches; leaves broadly linear, obtuse. *Br. Fl. ed.* 3. *p.* 39.—*Aira aquatica, Linn. E. Bot. t.* 1557. *E. Fl. v.* i. *p.* 101.

Muddy ditches and watery places. *Fl.* May, June. ♃.—This, as Doctor Hooker remarks, is very different in habit and generic character from *Aira.* Mertens unites it to the long spikeleted *Poas,* which now, according to Smith, form the genus *Glyceria:* but it does not naturally combine with them. *Culm* or rather *caudex* of the root very long, branched, floating, jointed, sending from the joints fibrous radicles below, and *culms* above, a foot or more long, stout, with short broad leaves. *Calyx* scarcely nerved, thin and membranous, broadly oval, obtuse. *Corolla* of a thick texture, brownish-green, white and diaphanous at the blunted extremity.

9. AIRA. *Linn.* Hair-grass.

Calyx of two valves, unequal, containing two perfect flowers. *Corolla* 2-valved, membranaceous and thin; the outer one awned (rarely awnless) near the base. *Fruit* free.—Named from *αιρω, to destroy.* This name was anciently applied to *Lolium temulentum, (bearded Darnel,)* on account of its injurious effects: and now to the present genus, though having little in common with it. *Triandria. Digynia.*

* *Corolla awnless. Panicle spiked.* Kœleria, *Persoon.* Airochloa, *Link, Lindl.*

1. A. *cristata,* Linn. *Crested Hair-grass.* Panicle spiked, smoothish; leaves hairy. *Br. Fl. ed.* 3. *p.* 39. *E. Fl. v.* i. *p.* 101. *E. Bot. t.* 648.—*Poa, Linn.*

Dry pastures, especially near the sea, frequent. *Fl.* June, July. ♃.—Six to eight inches high. *Leaves* linear, short, glaucous. *Spike* shining, ovato-lanceolate. *Glumes* of the *calyx* acute, lanceolate, compressed, glabrous, and downy and a little rough at the keel. Inner valves of the *corolla* rough, white, delicate, reticulated, bifid, with two longitudinal folds.

* * *Corolla awned. Panicle lax.*

2. A. *cæspitosa*, Linn. *Turfy Hair-grass.* Panicle diffuse; branches scabrous; florets hairy at the base, rather longer than the calyx; awn straight, inserted near the base of, and not exceeding in length, the corolla. *Br. Fl. ed.* 3. *p.* 40. *E. Fl. v.* i. *p.* 102. *E. Bot. t.* 1432.—*Deschampsia, Beauv.*

Moist meadows and borders of fields, common. *Fl.* June—Aug. ♃.—Much tufted. *Culms* two to four feet high. *Leaves* linear, acuminate, rough at the margin. *Panicle* large, silvery-grey or greenish, much branched. *Spikelets* acute. *Calyx-valves* unequal, lanceolate, subglabrous, rather acute, erose. *Florets* with a few longish hairs at the base, upper ones pedunculated; their valves ovate, obtuse, erose, the outer ones with five short teeth, the inner bifid. A coarse grass, seldom eaten by cattle, sometimes viviparous.

3. A. *flexuosa*, Linn. *Waved Hair-grass.* Panicle (when flowering) diffuse; florets villous at the base, as long as the calyx; awn jointed, inserted near the base of, but much longer than the calyx; leaves setaceous. *Br. Fl. ed.* 3. *p.* 40. *E. Fl. v.* i. *p.* 104. *E. Bot. t.* 1519.

Heaths and hilly places, abundant. *Fl.* July. ♃.—One to two feet high. *Panicle* loose, shining, capillary. *Florets* protruded considerably beyond the calyx. *Valves* of the *corolla* lanceolate, acute.

4. A. *caryophyllea*, Linn. *Silvery Hair-grass.* Panicle divaricated; florets scarcely villous at the base, shorter than the calyx; awn inserted below the middle, jointed, longer than the calyx; leaves setaceous. *Br. Fl. ed.* 3. *p.* 40. *E. Fl. v.* i. *p.* 106. *E. Bot. t.* 812.

Gravelly hills and pastures, frequent. *Fl.* June, July. ♃.—Two to eight inches high. *Leaves* short, few. *Panicle* trichotomous. *Florets* silvery-grey. *Calyx-valves* nearly equal, lanceolate, the upper part pellucid and white. *Valves* of the *corolla* scabrous at the back. unequal, apex bifid.

5. A. *præcox*, Linn. *Early Hair-grass.* Panicle somewhat spiked; florets scarcely villous at the base, about as long as the calyx; awn twisted, inserted below the middle, longer than the calyx; leaves setaceous. *Br. Fl. ed.* 3. *p.* 41. *E. Fl. v.* i. *p.* 105. *E. Bot. t.* 1296.

Sandy hills and pastures. *Fl.* May, June. ⊙.—One to three inches high. *Panicle* few-flowered, pale silvery-green. *Valves* of the calyx lanceolate, scabrous, when seen under a good glass; those of the corolla narrow, acuminate, scabrous, the point bifid.

10. MELICA. *Linn.* Melic-grass.

Panicle lax. *Calyx* of two valves, about 2-flowered, with the rudiment of a third floret. *Corolla* 2-valved, awnless. *Fruit*

free, covered by the cartilaginous corolla.—Name, *Melica*, or *Melliga*, given in Italy to the *Sorghum vulgare*, on account of the sweet flavour of its stem *(mel, honey)*; applied by Linnæus to this somewhat allied genus.
Triandria. Digynia.

1. M. *uniflora*, Linn. *Wood Melic-grass.* Panicle branched, slightly drooping; spikelets erect, ovate, with only one perfect floret. *Br. Fl. ed.* 3. *p.* 41. *E. Fl. v.* i. *p.* 112. *E. Bot. t.* 1058.

Shady woods, frequent. *Fl.* May, June. ♃.—Imperfect *floret* on rather a long foot-stalk. *Leaves* broader than *M. nutans*, which has not yet been found in Ireland, and whole plant larger. *Scale* of one piece, orange-coloured, thick, "covered by the outer glume of the corolla." (*Wilson.*) *Hook.*

2. M. *cærulea*, Linn. *Purple Melic-grass.* Panicle erect, subcoarctate; spikelets erect, oblongo-cylindrical; floret much longer than the calyx. *Br. Fl. ed.* 3. *p.* 41. *E. Fl. v.* i. *p.* 113. *E. Bot. t.* 750.—*Molinia, Schrank, Lindl.*—β. panicle pale green; spikelets few-flowered. *M. alpina, Don.*—*M. depauperata, Lindl.*

Wet heathy places and moors, frequent.—β. Cunnamara. *Fl.* Aug. ♃.—Habit very different from the last, but scarcely distinguishable in generic character. *Culms* one to two feet high or more. All the *leaves*, which are long and linear, acuminated, springing from the base, or from a single joint immediately above it. *Panicle* two to eight inches in length, bluish-purple, rarely green. *Calyx-valves* lanceolate, nearly equal. *Florets* generally two perfect and one sterile. *Anthers* large, purple. The culms are very tough, and Lightfoot says, the fishermen in Skye twist them into excellent ropes for their nets.

11. HOLCUS. *Linn.* Soft-grass.

Panicle lax. *Calyx* of two valves, nearly equal, 2-flowered. *Corolla* 2-valved; upper floret with stamens only and awned, lower perfect and awnless. *Fruit* covered by the indurated *corolla.*—Name, *ολκος*, from *ελκω*, to *extract;* because it was supposed to have the property of drawing out thorns from the flesh.
Triandria. Digynia.

1. H. *mollis*, Linn. *Creeping Soft-grass.* Calyx-valves acuminate; imperfect flower with an exserted geniculated awn; joints of the culm with a tuft of hairs; root creeping. *Br. Fl. ed.* 3. *p.* 42. *E. Fl. v.* i. *p.* 108. *E. Bot. t.* 1170.

Pastures and hedges, common. *Fl.* July. ♃.—Mr. Wilson well observes, that this species is best distinguished by the acute(or almost acuminate) calyx-glumes and downy joints of the culm.

2. H. *lanatus*, Linn. *Meadow Soft-grass.* Calyx-valves rather obtuse, mucronate; imperfect flower with a curved awn included within the calyx, no tuft of hairs at the joints; root

fibrous. *Br. Fl. ed.* 3. *p.* 42. *E. Fl. v.* i. *p.* 107. *E. Bot. t.* 1169.

Meadows, pastures, and woods, common. *Fl.* June, July. ♃.—Much resembling the last in general appearance, but clothed with a softer and more abundant pubescence. This is the White Hay-seed of the shops, much in demand for sowing in low meadows.

12. Arrhenatherum. *Beauv. Oat-like-grass.*

Panicle lax. *Calyx* of two valves, 2-flowered; lowermost floret with stamens only and a long twisted awn above the base, upper one perfect with a short straight bristle below the point.—Named from *αρρην, male,* and *αθηρ, an awn.*—This genus has altogether the habit of *Avena,* from which it differs in the number and structure of its florets.

Triandria. Digynia.

1. A. *avenaceum,* Beauv. *Common Oat-like-grass. Br. Fl. ed.* 3. *p.* 42. *Lindl. Syn. p.* 305.—*Holcus avenaceus, Scop.*—*E. Bot. t.* 813. *E. Fl. v.* i. *p.* 108.—*Avena elatior, Linn.*

Hedges and pastures, frequent. *Fl.* June, July. ♃.—*Roots* more or less knotty. *Stem* two to three feet high. *Panicle* long, loose. *Spikelets* greenish-brown. A stout grass, yielding a large crop, but unpalatable to cattle, especially to horses.

13. Sesleria. *Linn.* Moor-grass.

Panicle spiked. *Calyx* of two valves, nearly equal, somewhat awned. *Corolla* of two valves, the outer jagged and awned, the inner bidentate. *Fruit* free.—Named from *Leonard Sesler,* an Italian Physician and Botanist.

Triandria. Digynia.

1. S. *cærulea,* Scop. *Blue Moor-grass.* Panicle spiked, ovate, bracteated; outer valve of the corolla with one short terminal awn. *Br. Fl. ed.* 3. *p.* 42. *E. Fl. v.* i. *p.* 114. *E. Bot. t.* 1613.—*Cynosurus cæruleus, Linn.*

Limestone rocks on Ben Bulben and other mountains in the County of Sligo. *Fl.* April, May. ♃.—One of our earliest grasses. *Roots* much tufted. *Plant* nine to eighteen inches high. *Leaves* linear, obtuse. *Spike* of a shining bluish grey, with large yellow anthers tipped with purple. *Spikelets* generally in pairs, oblongo-ovate, the lower ones with an ovate, ciliated, and toothed bractea at the base.

† † † *Calyx three- or, mostly, many-flowered.*

14. Poa. *Linn.* Meadow-grass.

Panicle lax. *Calyx* 2-valved, shorter than the florets. *Corolla* 2-valved, valves subovate, bluntish, awnless. *Fruit* free.—

Name, *ποα*, *grass* or *pasturage*, from *παω*, *to feed;* the whole Genus affording an abundant pasturage for cattle.

Triandria. Digynia.

* *Spikelets linear or subcylindrical.* (Glyceria, *Sm.* and, in part, *Br.*)

1. P. *aquatica*, Linn. *Reed Meadow-grass.* Panicle erect, very much branched; spikelets linear, with about six obtuse florets, which have seven ribs. *Br. Fl. ed.* 3. *p.* 43. *E. Bot. t.* 1315.—*Glyceria aquatica. E. Fl. v.* i. *p.* 116.—*Hydrochloa, Hartman, Lindl.*

Sides of rivers, pools and ditches. *Fl.* July, Aug. ♃.—Four to six feet high, erect. *Leaves* linear-lanceolate, rough. *Ligule* short, obtuse. *Calyx-valves* small, ovate, obtuse, membranous, smoothish. *Exterior valves* of the *corolla* twice as long as the calyx; *interior* narrower and bifid at the point. A useful grass to sow on the banks of rivers or brooks, horses, cows, and goats being exceedingly fond of it.

2. P. *fluitans*, Scop. *Floating Meadow-grass.* Panicle nearly erect, slightly branched; spikelets linear, appressed, of from seven to eleven obtuse florets, which have seven ribs with short intermediate ones at the base; root creeping. *Br. Fl. ed.* 3. *p.* 43. *E. Bot. t.* 1520.—*Glyceria fluitans, Br. E. Fl. v.* i. *p.* 116.—*Festuca, Linn.*

Ditches and stagnant waters, abundant. *Fl.* July, Aug. ♃.—*Culms* one to three feet high, thick and succulent. *Leaves* linear-lanceolate, acute. *Ligule* oblong, pointed. *Panicle* subsecund, very long, slender; *calyx-valves* unequal, small, ovate, membranous, obtuse. *Corolla-valves* ovato-oblong, thrice as long as the calyx; outer ones scabrous. The scale is of one thick fleshy piece, which is the principal character of Mr. Brown's genus *Glyceria.* "It yields the *Manna-seeds* of our shops, which are gathered abundantly in Holland, where, as in Poland and Germany, they are used for food." *Hooker.* This, like the last, is a sweet juicy grass, and cows are very fond of it.

3. P. *maritima*, Huds. *Creeping Sea Meadow-grass.* Panicle erect, subcoarctate, (rigid); spikelets linear, of about five obtuse florets, which are obsoletely 5-nerved; leaves convolute; root creeping. *Br. Fl. ed.* 3. *p.* 44. *E. Bot. t.* 1140.—*Glyceria marit., E. Fl. v.* i. *p.* 118.—*Sclerochloa, Lindl.*

Sea-coast, frequent. *Fl.* July, Aug. ♃.—Eight to twelve inches high, rigid, glaucous. *Leaves* involute, somewhat pungent. *Ligule* ovate, bluntish. *Glumes* all firm, cartilaginous, purplish. *Calyx-valves* nearly as large as the corolla, with mostly three ribs. *Florets* hairy at the base, sometimes purplish.

4. P. *distans*, Linn. *Reflexed Meadow-grass.* Panicle spreading; branches at length deflexed; spikelets linear, of about five obtuse florets, which are obsoletely 5-nerved; leaves plane; root fibrous. *Br. Fl. ed.* 3. *p.* 44. *E. Bot. t.* 986.—*Glyceria distans, E. Fl. v.* i. *p.* 118.

Salt marshes at Howth, Ringsend, and other places on the coast. *Fl.* July, Aug. ♃.—One foot high. *Leaves* linear, plane, not pungent. *Ligule* short, obtuse. *Branches'* of the *panicle* singularly deflexed, slender. *Spikelets* much shorter than in the last species. *Glumes* membranous, softer. *Calyx-valves* much smaller than the corolla, unequal, larger one obscurely 3-nerved.

5. P. *procumbens*, Curt. *Procumbent Sea Meadow-grass.* Panicle compact, ovato-lanceolate, disticho-secund, (rigid); spikelets linear-lanceolate, of about four florets, which are 5-ribbed. *Br. Fl. ed.* 3. *p.* 44. *E. Bot. t.* 532.—*Glyceria procumbens, E. Fl. v.* i. *p.* 119.—*Sclerochloa, Beauv. Lindl.*

Salt marsh below Cork; *Mr. J. Drummond. Fl.* June—Aug. ⊙.—*Culms* procumbent, six to eight inches long, glaucous. *Leaves* linear, obtuse. *Ligule* short, very blunt. *Panicle* about two inches long; branches patent, distichous, their *spikelets* secund. *Calyx-valves* smaller than the floret, obtuse, strongly ribbed. *Florets* oblong, distant upon the rachis. Inner valve of the *corolla* membranous, bifid at the point.

6. P. *rigida*, Linn. *Hard Meadow-grass.* Panicle lanceolate, disticho-secund, (rigid); spikelets linear, acute, of about seven florets, which are almost all ribless; root fibrous. *Br. Fl. ed.* 3. *p.* 44. *E. Bot. t.* 1371.—*Glyceria rigida, E. Fl. v.* i. *p.* 119.—*Sclerochloa, Beauv. Lindl.*

Walls, rocks, and dry barren soils, frequent. *Fl.* June. ⊙.—*Whole plant* very rigid and wiry, three to five inches long. *Leaves* rigid, linear, setaceous. *Ligule* oblong, jagged. *Rachis* angled, sometimes at once bearing the spikelets, (when it much resembles *Triticum loliaceum*,) but more usually throwing out branches.

7. P. *compressa*, Linn. *Flat-stemmed Meadow-grass.* Panicle subsecund, spreading (afterwards subcoarctate); spikelets oblong, of 5—7 obtuse flowers connected by a web; culm compressed; root creeping. *Br. Fl. ed.* 3. *p.* 45. *E. Fl. v.* i. *p.* 131. *E. Bot. t.* 365.

On walls and dry ground. Walls of Derry; *Mr. D. Moore.* Between Galway and Tuam; *Mr. J. White. Fl.* June, July. ♃.—One foot or more high, rather glaucous. *Culms* compressed, procumbent at the base. *Leaves* short, linear, acute. *Ligule* very short, blunt; *panicle* not much branched. *Calyx-valves* ribbed, acute. *Valves* of the *corolla* obtuse, outer one very closely ribbed; the lower florets webbed at the base.

* * *Spikelets ovate.* (Poa, *Sm.*)

8. P. *alpina*, Linn. *Alpine Meadow-grass.* Panicle diffuse; spikelets ovate, of 4—5 acute flowers, hairy below (but not webbed); leaves broadly linear, obtuse; ligule of the upper leaves oblong, acute, of the lower ones short, obtuse. *Br. Fl. ed.* 3. *p.* 45. *E. Fl. v.* i. *p.* 121. *E. Bot. t.* 1003.

Near the summit of Brandon, County of Kerry; Croagh Patrick, County of Mayo; and Ben-Bulben, County of Sligo. Slieve Gallion, County of Derry; *Mr. D. Moore. Fl.* July, Aug. ♃.—Six to twelve inches high, nearly erect. *Leaves* short, linear, obtuse, with a very small mucro or point. *Spikelets* rather large, close. *Calyx-valves* ovato-lanceolate, much compressed; dorsal rib scabrous, ending in a very short point or awn, with a short lateral rib or nerve at the base. *Ext. valves* of the *corolla* ovato-lanceolate, acute; dorsal rib scabrous, no lateral ones: lower part villous, upper part glabrous, purple, margin diaphanous: *int. valves* notched or bifid at the extremity.

9. P. *trivialis*, Linn. *Roughish Meadow-grass.* Panicle diffuse; spikelets oblongo-ovate, of about three flowers, which are acute, 5-nerved, connected with a web; culms and sheaths roughish; ligule oblong; root fibrous. *Br. Fl. ed.* 3. *p.* 46. *E. Fl. v.* i. *p.* 124. *E. Bot. t.* 1072.

Meadows and pastures, common. *Fl.* June, July. ♃.—One to two feet high. *Leaves* linear, acute. *Ligule* oblong, with an acute point. *Panicle* much branched. An excellent grass, well adapted to low rich meadows.

10. P. *pratensis*, Linn. *Smooth-stalked Meadow-grass.* Panicle diffuse; spikelets oblongo-ovate, of about four flowers, which are acute, 5-nerved, webbed; culm and sheath smooth; ligule short; root creeping. *Br. Fl. ed.* 3. *p.* 46. *E. Fl. v.* i. *p.* 125. *E. Bot. t.* 1073.—β. *angustifolia;* smaller and with narrower leaves. *P. angustifolia, Linn.*—γ. *subcœrulea*; smaller and glaucous.—*P. subcœrulea. E. Bot. t.* 1004.

Meadows and pastures, frequent.—β. " In woods."—γ. On rocks at Powerscourt Waterfall, and Lough Bray. *Fl.* June, July. ♃.—Allied to the last, but readily distinguished by its smooth *culms* and short truncated *ligule.* This is also a good meadow-grass, and better adapted than the last for a dry soil, though yielding a less abundant crop.

11. P. *annua*, Linn. *Annual Meadow-grass.* Panicle subsecund, divaricated; spikelets oblongo-ovate, of about five flowers, which are a little remote, 5-ribbed, destitute of web; culm ascending, compressed; root fibrous. *Br. Fl. ed.* 3. *p.* 46. *E. Fl. v.* i. *p.* 127. *E. Bot. t.* 1141.

Meadows, pastures, paved courts and road-sides, common. *Fl.* all spring and summer. ⊙.—*Culms* six to ten inches long, below prostrate and throwing out roots. *Leaves* distichous, linear, rather blunt, flaccid, often waved, bright green. *Ligule* oblong, acute. *Calyx-valves* very unequal, ovato-lanceolate, rough at the back, nerved. *Ext. valve* of the *corolla* ovato-lanceolate, acute, white, and diaphanous at the margin, keel and base hairy.

12. P. *nemoralis*, Linn. *Wood Meadow-grass.* Panicle slender, slightly leaning one way, lax, attenuate; spikelets ovato-lanceolate, of about three rather distant slightly webbed flowers; ligule short, truncate; culm subcompressed and sheaths glabrous; root scarcely creeping. *Br. Fl. ed.* 3. *p.* 46. *E. Fl. v.* i. *p.* 129. *E. Bot. t.* 1265.

Woods and thickets, common. *Fl.* June, July. ♃.—One to three feet high, slender and delicate in all its parts. *Leaves* narrow, linear, acute. *Panicle* with the branches almost erecto-patent. *Spikelets* scattered. *Calyx-valves* unequal, ovato lanceolate, acute, rather obscurely ribbed, pubescent at the keel and hairy at the base, very slightly webbed. *P. glauca, E. Bot. t.* 1720, is now considered by Doctor Hooker and Mr. Wilson to be only a variety of this species. I have not found it on any of our mountains; but the late Mr. Templeton, in a note in one of my Catalogues, states that he found it near Belfast, and thought it not confined to high mountains.

15. TRIODIA. *Br.* Heath-grass.

Panicle racemed. *Calyx* 2-valved, many-flowered, nearly equal. *Corolla* 2-valved, exterior one with three nearly equal teeth, the middle one straight.—Named from *τρεις, three,* and *οδους, a tooth.* *Triandria. Digynia.*

1. T. *decumbens,* Beauv. *Decumbent Heath-grass.* Panicle of few racemed spikelets; calyx as long as the flowers; ligule a tuft of hairs. *Br. Fl. ed.* 3. *p.* 47. *E. Fl. v.* i. *p.* 131.—*Poa decumbens, E. Bot. t.* 131.—*Festuca decumbens, Linn.*

Abundant in dry mountainous pastures and heaths. *Fl.* July. ♃.—A foot long, procumbent; *flowering culms* only erect. *Leaves* linear, acuminate, hairy as well as the sheaths. *Calyx-valves* nearly equal, lanceolate, acute, nerved, with broad, thin margins, scabrous on the keels. *Ext. valve* of the *corolla* ovate, nerved or ribbed, having a small tuft of hairs on each side at the base; apex with three teeth. *Int. valve* obtuse, entire at the point, ciliated at the angles of the fold.—In habit very distinct from *Poa.*

16. BRIZA. *Linn.* Quaking-grass.

Panicle lax. *Calyx* 2-valved. *Corolla* 2-valved, awnless; *ext.* one ventricose, *int.* very small and flat. *Fruit* adnate with the *corolla.*—Named from *βριθω, to balance,* the spikelets being most delicately suspended.
Triandria. Digynia.

1. B. *media,* Linn. *Common Quaking-grass.* Spikelets broadly ovate, of about seven flowers; calyx shorter than the florets. *Br. Fl. ed.* 3. *p.* 47. *E. Fl. v.* i. *p.* 133. *E. Bot. t.* 340.

Meadows and pastures, frequent. *Fl.* June. ♃.—A graceful plant. *Culms* slender, one foot or more high. *Leaves* short, linear-acuminate. *Stipules* short, obtuse. *Panicle* considerably branched; *branches* thread-shaped, divaricating, purple. *Spikelets* tremulous with the slightest breeze, very smooth, shining purple, more or less green or greenish-white at the edges. *Calyx-valves* very concave, subcompressed. *Exterior valve* of the *corolla* much like the *calyx,* but rather smaller; *interior* one minute, resembling a flat scale within the outer one.

17. Dactylis. *Linn.* Cock's-foot-grass.

Panicle with the secondary branches short and very dense, subsecund. *Calyx* of two unequal valves, the larger one keeled. *Corolla* of two lanceolate, scarcely awned valves, enclosing the *fruit.*—Named from δακτυλος, a *finger.*
Triandria. Digynia.

1. D. *glomerata,* Linn. *Rough Cock's-foot-grass.* Panicle crowded, secund; corolla acuminate, somewhat awned. *Br. Fl. ed.* 3. *p.* 48. *E. Fl. v.* i. *p.* 134. *E. Bot. t.* 335.

Way-sides, meadows and woods, abundant. *Fl.* July. ♃.—One to two feet high. *Leaves* rather broadly linear, acuminate, scabrous. *Panicles* secund. *Spikelets* of three to four florets, thickly clustered on the branches; clusters ovate. *Valves* of the *calyx* membranous, smaller than the *corolla,* lanceolate, acuminate, unequal, glabrous, scrabrous at the back of the valves, which are more or less obliquely keeled. *Ext. valve* of the *corolla* subcartilaginous, lanceolate, much compressed, scabrous, ribbed, ciliated at the keel, with a short awn at the point; *int. valve* bifid at the extremity.—An excellent grass for cattle in dry open pastures. The late Duke of Bedford considered it one of the best for a sheep-walk. Mr. Moore finds it sometimes viviparous in the County of Derry.

18. Cynosurus. *Linn.* Dog's-tail-grass.

Panicle spiked. *Calyx* 2-valved, equal, awned, having a pectinated involucre. *Corolla* 2-valved; *valves* linear-lanceolate; *interior* awned below the extremity or awnless.—Named from κυων, a *dog,* and ουρα, a *tail,* from the shape of its spike. *Triandria. Digynia.*

1. C. *cristatus,* Linn. *Crested Dog's-tail-grass.* Raceme spiked, linear; florets with a very short awn. *Br. Fl. ed.* 3. *p.* 48. *E. Fl. v.* i. *p.* 157. *E. Bot. t.* 316.

Dry pastures, frequent. *Fl.* July. ♃.—One to one and a half foot high, slender. *Leaves* narrow, linear, acuminate. *Raceme* secund. *Involucres* beautifully pectinated, one at the base of each spikelet, their divisions linear, acute, greenish, subglumaceous, a little curved, rough. *Spikelets* three to five-flowered. *Calyx-valves* lanceolate, nearly equal, membranous, rough at the keel, as long as the floret. *Ext. valve* of the *corolla* lanceolate, obscurely nerved, green, scabrous, especially at the keel, terminating in a short rough awn; *interior* white, bifid, pubescent at the angles of the fold.—A good grass for sheep, and the culms are used advantageously for the manufacture of fine straw bonnets.

19. Festuca. *Linn.* Fescue-grass.

Panicle lax, or coarctate, or spiked. *Calyx* of two unequal valves. *Corolla* of two lanceolate valves; *exterior* acumi-

nate, or awned at the summit.—Named from the Celtic word *fest*, according to Theis, which signifies *food, pasturage.*
Triandria. Digynia.

1. F. *ovina*, Linn. *Sheep's Fescue-grass.* Panicle subsecund, subcoarctate; spikelets oblong, of about four to five flowers with short awns; culms square upward; leaves setaceous. *Br. Fl. ed.* 3. *p.* 48. *E. Fl. v.* i. *p.* 139. *E. Bot. t.* 585.—β. (*Sm.*) *rubra;* panicle purplish. *F. rubra, With.*—γ. (*Sm.*) *cæsia;* plant glaucous. *E. Fl.*—*F. cæsia, E. Bot. t.* 1917.—δ. *vivipara;* plant taller; flowers viviparous. *F. ovina, β. Linn. Hook.*—γ. *Schrad.*—*F. vivipara, E. Bot. t.* 1355. *E. Fl. v.* i. *p.* 140.

Abundant on dry elevated pastures. δ. On the tops of our highest mountains. *Fl.* June, July. ♃.—*Leaves* mostly short, often curved, smooth or slightly scabrous, much tufted, and affording excellent food for sheep. *Culm* four to eight inches or a foot high, in the upper part more or less distinctly four-sided. *Calyx-valves* much shorter than the *corolla*, acute, subglabrous. *Corolla, ext. valve* more or less glabrous, sometimes pubescent upward. Whole plant more or less glaucous, and having a purple tint in the spikelets.

2. F. *duriuscula*, Linn. *Hard Fescue-grass.* Panicle subsecund, subcoarctate; spikelets oblong, of about six flowers, with short awns; stem-leaves nearly plane, radicle ones subsetaceous; root fibrous. *Br. Fl. ed.* 3. *p.* 49. *E. Fl. v.* i. *p.* 141. *E. Bot. t.* 470.

Pastures, waste ground, and tops of walls, frequent. *Fl.* June, July. ♃.—The *leaves* on the stem are sometimes convolute, and then they appear setaceous. One to one and a half foot high, by which size and its stouter habit it may be readily distinguished from *F. ovina.*

3. F. *rubra*, Linn. *Creeping Fescue-grass.* Panicle unilateral, spreading; florets longer than their awns; leaves downy on their upper side, more or less involute; root extensively creeping. *Br. Fl. ed.* 3. *p.* 49. *E. Fl. v.* i. *p.* 141. *E. Bot. t.* 2056.

Light sandy pastures near the sea, common. *Fl.* July. ♃.—*Root* creeping, often extending many feet in the sand.

4. F. *bromoides*, Linn. *Barren Fescue-grass.* Panicle secund, racemed; florets shorter than the awn, monandrous; culm above leafless. *Br. Fl. ed.* 3. *p.* 49. *E. Fl. v.* i. *p.* 162. *E. Bot. t.* 1411.

Dry pastures and on walls. Plentiful on Killiney-hill, and fields near Enniskerry and other places in the County of Wicklow. *Fl.* June. ⊙.—Six to eight inches high. *Leaves* linear, setaceous, complicate; *calyx-valves* very unequal, lanceolate, acuminate, nerved, rough at the keel. *Florets* about six in each spikelet. *Ext. valve* of *corolla* linear-lanceolate, scabrous, tapering into a straight awn, thrice the length of the valve.

5. F. *Myurus*, Linn. *Wall Fescue-grass.* Panicle secund,

elongated, contracted; florets shorter than the awn, monandrous; culm leafy in its upper part. *Br. Fl. ed.* 3. *p.* 49. *E. Fl. v.* i. *p.* 143. *E. Bot. t.* 1412.

Walls and barren places. Near Cork; *Mr. J. Drummond.* County of Derry; *Mr. D. Moore.* Near Belfast; *Mr. Templeton. Fl.* June. ⊙.—Much resembling the last, but taller. One foot or more high. *Leaves* rather shorter, their *sheaths* longer. *Panicle* often four to five inches long. *Calyx-valves* and florets narrow, rather more scabrous than in *F. bromoides; awns* longer.

6. F. *uniglumis*, Soland. *Single-glumed Fescue-grass.* Panicle a simple, erect, 2-ranked, subsecund raceme; one valve of the calyx obsolete. *Br. Fl. ed.* 3. *p.* 50. *E. Fl. v.* i. *p.* 143. *E. Bot. t.* 1430.—*Stipa membranacea, Linn.? Sm.*

Portmarnock sand-hills. *Fl.* June. ⊙.—Varying in size from three to four inches high in my Portmarnock specimens. This plant is remarkable for the suppression of one of the valves of its *calyx*, by which the species is at once known.

7. F. *calamaria*, Sm. *Reed Fescue-grass.* Panicle subsecund, much branched, spreading, nearly erect; spikelets oblong, awnless, 3—5-flowered; leaves linear-lanceolate. *Br. Fl. ed.* 3. *p.* 50. *E. Fl. v.* i. *p.* 145. *E. Bot. t.* 1005.—*Schedonorus sylvaticus, Beauv. Lindl.*

Mountain glens and woods. Dargle, Powerscourt Waterfall; Woodstock, County of Kilkenny. Colin-Glen near Belfast, and Ness-Glen, County of Derry; *Mr. Templeton and Mr. D. Moore. Fl.* July. ♃.—Two to three feet high, with large and broad *leaves. Calyx-valves* narrow, linear-lanceolate, very unequal, smaller one single-nerved, larger with three nerves. *Florets* rather distant upon the rachis. *Ext. valve* of *corolla* scabrous, lanceolato-acuminate.

8. F. *loliacea*, Huds. *Spiked Fescue-grass.* Raceme spiked, distichous; spikelets linear-oblong, nearly sessile, remote; florets cylindrical, awnless, outer valve of corolla obtuse. *Br. Fl. ed.* 3. *p.* 50. *E. Fl. v.* i. *p.* 146. *E. Bot. t.* 1821.—*Schedonorus, Dumort. Lindl.*

Moist meadows and pastures, not unfrequent. *Fl.* June, July. ♃.—Two feet high. *Leaves* few, short, linear, acute. *Racemes* two to five inches long; *rachis* flexuose. *Spikelets* nearly sessile, especially the upper ones, five to six-flowered. *Calyx-valves* unequal, lanceolate, acute, 7-ribbed. *Outer valves* of the *corolla* ovato-lanceolate, nerved, diaphanous at the apex and obtuse, slightly scabrous only on the nerves.

9. F. *pratensis*, Huds. *Meadow Fescue-grass.* Panicle patent, branched; spikelets linear, many-flowered; florets cylindrical, awnless, outer valve of corolla acute; leaves linear; root fibrous. *Br. Fl. ed.* 3. *p.* 50. *E. Fl. v.* i. *p.* 147. *E. Bot. t.* 1592.—*Schedonorus, Beauv. Lindl.*

Moist meadows and pastures, common. *Fl.* June, July. ♃.—One to two feet high. Distinguished at first sight from the preceding by its *panicled* (not spiked) *raceme;* also by the florets, which, though much resembling the last, have their outer valve more acute.—An excellent meadow-grass.

10. F. *elatior*, Linn. *Tall Fescue-grass.* Panicle patent, very much branched; spikelets ovato-lanceolate, many-flowered; florets cylindrical, subaristate; leaves linear-lanceolate; root creeping. *Br. Fl. ed.* 3. *p.* 50. *E. Fl. v.* i. *p.* 148. *E. Bot. t.* 1593.—*Schedonorus, Lindl.*

Moist banks and meadows, not uncommon. *Fl.* June, July. ♃.—Three to five feet high. *Leaves* twice the size of *F. pratensis;* from which it further differs in having a much more branched and drooping panicle, which spreads nearly in every direction, with ovate, acute, less compressed spikelets.

20. Bromus. *Linn.* Brome-grass.

Panicle lax. *Calyx* of two valves, many-flowered. *Corolla* of two lanceolate *valves; exterior* one awned below the bifid extremity. (Inner valve generally fringed at the folds. *Sm.*)—Named from *βρωμος*, given by the Greeks to a kind of *oat*, and that again from *βρωμα*, *food.*

Triandria. Digynia.

1. B. *giganteus*, Vill. *Tall Brome-grass.* Panicle branched, drooping towards one side; spikelets lanceolate, compressed; florets shorter than the awn; leaves linear-lanceolate, ribbed. *Br. Fl. ed.* 3. *p.* 50.—*Festuca gigantea, E. Bot. t.* 1820. *E. Fl. v.* i. *p.* 144.

Shady woods and moist hedges, frequent. *Fl.* July—Aug. ♃.—Three to four feet high, with broad *leaves*, having the habit and essential character of *Bromus*, but sometimes arranged by authors with *Festuca*. *Panicle* large. *Spikelets* with three to six *florets*. *Calyx-valves* very unequal, larger ones with three ribs. Outer valve of *corolla* lanceolate, obscurely ribbed, nearly glabrous, membranous at the edge upward. *Awn* very long, inserted a little below the bifid point.

2. B. *asper*, Linn. *Hairy Wood Brome-grass.* Panicle branched, drooping; spikelets linear-lanceolate, compressed; florets remote, subcylindrical, hairy, longer than the straight awn; leaves uniform, the lower ones hairy. *Br. Fl. ed.* 3. *p.* 51. *E. Fl. v.* i. *p.* 158. *E. Bot. t.* 1172.

Moist woods and hedges, frequent. *Fl.* June, July. ⊙ or ♂.—Four to six feet high. *Leaves* broad. *Panicle* large, spreading.

3. B. *sterilis*, Linn. *Barren Brome-grass.* Panicle drooping, slightly branched; spikelets linear-lanceolate; florets remote, subcylindrical, scabrous, shorter than the straight awn; leaves pubescent. *Br. Fl. ed.* 3. *p.* 51. *E. Fl. v.* i. *p.* 159. *E. Bot. t.* 1030.

Waste ground, fields, and hedges, common. *Fl.* June, July. ⊙.—Two feet high. Remarkable for its long, narrow, much awned and drooping *spikelets.*

4. B. ***secalinus***, Linn. *Smooth Rye-Brome-grass.* Panicle spreading; peduncles but little branched; spikelets oblongo-ovate, compressed, of about ten subcylindrical, glabrous, rather remote florets, longer than the awn. *Br. Fl. ed.* 3. *p.* 51. *E. Fl. v.* i. *p.* 151. *E. Bot. t.* 1171.

Corn-fields, &c.; occasionally. *Fl.* July, Aug. ⊙.—Two to three feet high. *Leaves* somewhat hairy. *Calyx* and *ext. valve* of the *corolla* broadly ovate; *int. valve* bifid at the point, the margin strongly ciliated. When the seeds are ripe, the upper spikelets are pendulous, and the florets exhibit more evidently their distant mode of insertion.

5. B. ***mollis***, Linn. *Soft Brome-grass.* Panicle erect, close, compound; spikelets ovate, subcompressed; florets imbricated, compressed, pubescent; awn straight, about as long as the glume; leaves very soft, pubescent. *Br. Fl. ed.* 3. *p.* 52. *E. Fl. v.* i. *p.* 153. *E. Bot. t.* 1078.

Meadows, pastures, road-sides, &c.; very common. *Fl.* June. ♂.—One to two feet high. *Panicle* two to three inches long. *Spikelets* standing nearly erect. *Florets* five to ten. *Ext. valve* of the *corolla* convex.

6. B. ***racemosus***, Linn. *Smooth Brome-grass.* Panicle erect; peduncles simple; spikelets ovate, subcompressed, glabrous; florets imbricated, compressed; awn straight, about as long as the glume; leaves slightly hairy. *Br. Fl. ed.* 3. *p.* 52. *E. Fl. v.* i. *p.* 154. *E. Bot. t.* 1079.—*B. pratensis*, *E. Bot. t.* 920.

Gravel-pit in the Dublin Society's Garden, and fields in its vicinity; *Mr. Underwood.* Near Belfast; *Mr. Templeton.* *Fl.* June, July. ⊙. (♂ *Schrad.*)—More slender in habit than the last, and much less downy. The *panicle* is generally simple, its branches longer and less divided, rough with minute bristles, not downy. *Spikelets* more turgid, rough to the touch, but naked and shining. I am, however, inclined to think with Dr. Hooker, that it is only a variety of the last.

7. B. ***arvensis***, Linn. *Taper Field Brome-grass.* Panicle spreading (at length drooping); peduncles branched; spikelets lanceolate, compressed; florets imbricated, compressed, glabrous, about as long as the straight awn; leaves hairy. *Br. Fl. ed.* 3. *p.* 52. *E. Fl. v.* i. *p.* 156. *E. Bot. t.* 1984.

Moist meadows, near Cullenagh, Queen's County, and fields near Sandymount. *Fl.* June, July. ⊙.—About three feet high. *Leaves* spreading, many-ribbed, hairy, rough edged, either nearly smooth or thickly covered with short deflexed pubescence. *Panicle* large and conspicuous, with numerous half-whorled, partly compound, harsh, spreading branches. *Spikelets* drooping and finally pendulous, ovato-lanceolate, variegated with purple and green.

8. B. ***erectus***, Huds. *Upright Brome-grass.* Panicle erect; spikelets linear-lanceolate, compressed; florets subcylindrical, remote, glabrous, longer than the straight awn; root-leaves very narrow, ciliated. *Br. Fl. ed.* 3. *p.* 52. *E. Fl. v.* i. *p.* 157. *E. Bot. t.* 471.

Lands of Santry and Coolock, on a calcareous soil; *Mr. J. White. Fl.* July. ♃.—Two to three feet high. *Panicle* erect and close, purplish, with yellow saffron-coloured anthers.

21. AVENA. *Linn.* Oat, or Oat-grass.

Panicle lax. *Calyx* 2-valved, 2-, or more, flowered. *Corolla* of two lanceolate *valves*, firmly enclosing the seed, *exterior* one bearing a twisted dorsal *awn*, upper florets often imperfect.—Name of doubtful origin: the ancients applied it to the *Brome-grass*. *Oat*, Theis tells us, comes from the Celtic word *atan*, the *Oat*; and that again from *etan*, to *eat*.

Triandria. Digynia.

1. A. *fatua*, Linn. *Wild Oat.* Panicle erect; spikelets drooping, of about three scabrous much awned florets, smaller than the calyx, villous below; root fibrous. *Br. Fl. ed.* 3. *p.* 53. *E. Fl. v.* i. *p.* 162. *E. Bot. t.* 2221.

Corn-fields, occasionally. *Fl.* June—Aug. ⊙.—Two to three feet high. *Leaves* linear-lanceolate. *Calyx-valves* large, membranous, ovato-lanceolate, shining at the margins, keeled, acuminate, ribbed. *Ext. valve* of *corolla* with long fulvous hairs at its base, bifid at the point. *Awn* of each floret long and twisted, and forming an excellent Hygrometer.

2. A. *strigosa*, Schrad. *Bristle-pointed Oat.* Panicle erect; branches all secund; spikelets of perfect florets, each awned, as long as the calyx, and terminated by two bristles. *Br. Fl. ed.* 3. *p.* 53. *E. Fl. v.* i. *p.* 163. *E. Bot. t.* 1266.

"Corn-fields near Cork; *Mr. J. Drummond. Fl.* June, July. ⊙.—Resembling the common oat in general habit and size; but the *panicle* is strikingly different, being oblong, somewhat crowded, its branches all leaning to one side. The essential difference resides in the two outer *glumes* of each *floret* being tipped with two straight, prominent, reddish, rough bristles, over and above the great *awn* at the back; which circumstance gives the whole plant a remarkably bristly or strigose appearance." *Hook.*

3. A. *pratensis*, Linn. *Narrow-leaved Oat-grass.* Raceme erect, simple; spikelets erect, oblong, of about 3—5 florets, longer than the calyx; leaves glabrous, finely serrated, lower ones involute; sheaths scarcely scabrous. *Br. Fl. ed.* 3. *p.* 53. *E. Fl. v.* i. *p.* 164. *E. Bot. t.* 1204.

Dry pastures over limestone, in mountainous districts. *Fl.* July. ♃.—*Leaves* short, finely serrated with minute cartilaginous teeth at the margins, the lower ones involute.

4. A. *pubescens*, Linn. *Downy Oat-grass.* Panicle erect, nearly simple; spikelets erect, of about three florets, a little longer than the calyx; outer valves of corolla jagged; leaves plane, downy, edges smooth. *Br. Fl. ed.* 3. *p.* 54. *E. Fl. v.* i. *p.* 164. *E. Bot. t.* 1640.—*Trisetum pubescens, Persoon. Lindl.*

Dry pastures. On the common near Kingstown, and many other places near Dublin. On the side of Slemish Mountain, County of Antrim; *Mr. Templeton.* County of Derry; *Mr. D. Moore.* *Fl.* June, July. ♃.—*Corolla* with a purple stain. *Glumes* all shining and pellucid at the summit. *Awn* brown, rough, from the middle of the valve, twice as long as the calyx. *Style* very short.

5. A. *flavescens,* Linn. *Yellow Oat-grass.* Panicle much branched, lax; spikelets of about three florets, equal in length to the longer of the very unequal calyx valves; outer valve of the corolla with two terminal bristles. *Br. Fl. ed.* 3. *p.* 54. *E. Fl. v.* i. *p.* 166. *E. Bot. t.* 952.

Dry meadows, and pastures, frequent. *Fl.* July. ♃.—This has the smallest flowers of any of the *Oat-grasses,* and may readily be distinguished by that circumstance, by the two terminal bristles on the outer valve of the *corolla,* and by the unequal *calyx-valves.*

22. ARUNDO. *Linn.* Reed.

Panicle loose. *Calyx* 2-valved, unequal, many-flowered. *Corolla* of two very unequal *valves;* all, except the lower and imperfect one, surrounded by a tuft of hairs. *Fruit* free, covered by the *corolla.*—Name; *Arundo,* the Latin for a *Reed;* "ab *arendo,* quod cito arescat." De Theis says it comes from *arn,* the Celtic word for *water.*

Triandria. Digynia.

1. A. *Phragmites,* Linn. *Common Reed.* Panicle spreading; calyx-valves acuminate, coloured, ribbed, and about 5-flowered; leaves lanceolate, acuminato-cuspidate. *Br. Fl. ed.* 3. *p.* 54. *E. Fl. v.* i. *p.* 168. *E. Bot. t.* 401.

Abundant in ditches, margins of lakes and rivers. *Fl.* July. ♃.—Six feet or more high, the tallest of our Grasses. *Panicle* large, purple-brown, at length drooping, very handsome. *Valves* of the *calyx* very unequal: *exterior* ovato-lanceolate, many-ribbed; *int.* twice its length, thin, membranous, obsoletely ribbed. As the flowers advance, the tufts of hair increase, at length becoming very silky. An extensive use is made of the culms, for thatching, garden-screens, for walls and floors which are afterwards covered with clay. The tops of the culms, with the adhering hairs or down, are sometimes tied to a pole, and used for brushing cobwebs from the ceilings of rooms.

* * *Flowers spiked.* (*Solitary flowers, or spikelets, sessile upon a common stalk or rachis.*)

† *Flowers or spikelets distichous or inserted on all sides.*

23. ELYMUS. *Linn.* Lyme-grass.

Spikelets two or three from the same point. *Calyx* 2-valved,

lateral (both the valves being on one side of the spikelet), 2—3-flowered, all perfect. *Corolla* 2-valved.—Name, ελυμος, given by the Greeks to the *Panic-grasses*, perhaps because they grew abundantly about *Elyma* in Greece. (*Theis.*)
Triandria. Digynia.

1. E. *arenarius*, Linn. *Upright Sea Lyme-grass.* Spike close, erect; spikelets in pairs, hairy; florets awnless, as long as the lanceolate valves of the calyx; leaves involute, pungent. *Br. Fl. ed.* 3. *p.* 55. *E. Fl. v.* i. *p.* 177. *E. Bot. t.* 1672.

Sandy sea-shores. Sand-bank at the western extremity of Bear, County of Cork; *Mr. J. Drummond.* Donegal coast, near Dunfanaghy, and coast between Ballyshannon and Sligo; *Mr. E. Murphy. Fl.* July. ♃.—*Root* much creeping in the loose sand; hence it becomes of great value, like the *Ammophila arenaria*, for preserving a considerable part of our coasts and those of Holland from the encroachments of the sea. *Culms* three to four feet high, glabrous. *Leaves* glaucous, pungent. *Spike* four to six inches long. *Spikelets* of about three flowers, on the rachis. *Calyx-valves* two, lanceolate, acuminate. *Valves* of the *corolla* resembling them, but the *ext.* one broader; *int.* bifid at the point, angles of the folds ciliated.

24. Hordeum. *Linn.* Barley.

Calyx lateral, 2-valved, single-flowered, ternate; central floret perfect, lateral ones mostly imperfect (having often at the back of the inner valve a bristle or abortive floret.) Outer valve of *corolla* awned. *Fruit* incorporated with the corolla. —Name of dubious origin. *Triandria. Digynia.*

1. H. *murinum*, Linn. *Wall Barley.* Calyx-valves of the intermediate floret linear-lanceolate, ciliated; those of the lateral florets setaceous, scabrous. *Br. Fl. ed.* 3. *p.* 55. *E. Fl. v.* i. *p.* 179. *E. Bot. t.* 1971.

Waste ground and by road-sides: very common near Dublin. *Fl.* June, July. ⊙.

2. H. *pratense*, Huds. *Meadow Barley.* Lateral flowers imperfect, with shorter awns; all the calyx-valves setaceous and scabrous. *Br. Fl. ed.* 3. *p.* 55. *E. Fl. v.* i. *p.* 180. *E. Bot. t.* 409.

Moist meadows, about Dublin, Cork, and Belfast, &c. *Fl.* July. ⊙.—*Culm* erect, two feet high. *Leaves* scabrous.

3. H. *maritimum*, With. *Sea-side Barley.* Calyx-valves smoothish, the interior one of the lateral florets semi-lanceolate, the rest setaceous. *Br. Fl. ed.* 3. *p.* 55. *E. Fl. v.* i. *p.* 180. *E. Bot. t.* 1205.

Light dry pastures near the sea. On the shore between Swords and Rush; *Mr. J. White. Fl.* July. ⊙.—Smaller than *H. murinum. Leaves* glaucous; *awns* rough.—I have not seen Irish specimens of this plant, and have some doubts of its being indigenous.

25. TRITICUM. *Linn.* Wheat or Wheat-grass.

Calyx 2-valved, many-flowered; its valves opposite, transverse, the sides (not the back of one of them) directed to the rachis, nearly equal. *Corolla* 2-valved, valves lanceolate; *exterior* one acuminate or awned at the extremity, *interior* bifid at the point.—There are two natural groups in this genus: first, the large annual species, exotic to our country, which are cultivated so extensively as *Bread-corn;* and, secondly, the smaller perennial species, several of which are natives with us. These, some authors look upon as two distinct genera; *Triticum* and *Agropyrum, (Beauv., Lindl.)* We have only to consider the latter genus, or group.—Name, *Triticum,* "quod *tritum* est e spicis:" because it is thrashed or beaten from the spikes.

Triandria. Digynia.

* *Spikelets distichous.*

1. T. *caninum,* Huds. *Fibrous-rooted Wheat-grass.* Calyx-awn valved, with 3—5 ribs, and about five awned florets; leaves plane; root fibrous. *Br. Fl. ed.* 3. *p.* 56. *E. Fl. v.* i. *p.* 184. *E. Bot. t.* 1327.—*Elymus can., Linn.*

Woods and hedges. Plentiful at Woodlands, County of Dublin. *Fl.* July. ♃.—Best distinguished from the following by its fibrous root.

2. T. *repens,* Linn. *Creeping Wheat-grass or Couch-grass.* Calyx-valves many-ribbed, with from 4—8-awned (rarely awnless) florets; leaves plane; root creeping. *Br. Fl. ed.* 3. *p.* 56. *E. Fl. v.* i. *p.* 182. *E. Bot. t.* 909.

Fields and waste places, abundant. *Fl.* throughout the summer months. ♃.—In habit between the preceding and the following, having a glaucous tint when growing near the sea. *Leaves* plane, or nearly so. *Spikelets* smaller and less compressed than in *T. junceum.* —This pest of the corn-fields is difficult to be extirpated, on account of its long creeping roots.

3. T. *junceum,* Linn. *Rushy Sea Wheat-grass.* Valves of the calyx obtuse, much ribbed, with 4—5 awnless florets; leaves involute, pungent; root creeping. *Br. Fl. ed.* 3. *p.* 56. *E. Bot. t.* 814. *E. Fl. v.* i. *p.* 182.

Sandy sea-shores, frequent. *Fl.* July. ♃.—Whole plant glaucous, rigid. One and a half to three feet high. *Spike* long. *Spikelets* oblong, much compressed, distant, sessile. *Calyx-valves* oblongo-lanceolate, often with three teeth at the point. *Exterior valves* of the *corolla* similar, with five nerves.

* * *Spikelets secund.*

4. T. *loliaceum,* Sm. *Dwarf Sea Wheat-grass.* Valves of

the calyx indistinctly 3-nerved, obtuse, of many awnless florets; root fibrous, annual. *Br. Fl. ed.* 3. *p.* 56. *E. Fl. v.* i. *p.* 186. *E. Bot. t.* 221.—*Catapodium, Link. Lindl.*

Sandy sea-shores. Sandymount, Howth, &c. and on the northern and southern coasts. *Fl.* June, July. ⊙.—Stiff and wiry, branching from the very base, three to four inches high. *Leaves* linear, rigid, plane. *Spikelets* more or less distant, secund; lower ones sometimes compound. *Ext. valve* of the *corolla* broadly ovate, concave.

26. BRACHYPODIUM. *Beauv.* False Brome-grass.

Spikelets alternate, remote, cylindrical-compressed. *Calyx* 2-valved, many-flowered; valves opposite, transverse, unequal. *Corolla* 2-valved, the *valves* lanceolate; *ext.* one generally awned at the extremity, *int.* retuse.—Named from βραχυς, *short*, and πους, *a foot*; from the sessile or nearly sessile spikelets.—These sessile spikelets and the *terminal awn* distinguish this genus from *Bromus*, where the British plants of this genus had been placed.

Triandria. Digynia.

1. B. *sylvaticum*, Beauv. *Slender False Brome-grass.* Spike drooping; spikelets nearly cylindrical, secund, hairy; awns longer than the florets. *Lindl. Syn. p.* 279. *Br. Fl. ed.* 3. *p.* 55.—*Festuca sylvatica, E. Fl. v.* i. *p.* 149.—*Bromus sylvaticus, Poll.*—*E. Bot. t.* 729.

Woods and hedges, common. *Fl.* July. ♃.—Two feet high. *Leaves* broadly linear-lanceolate, very hairy. *Calyx-valves* unequal, lanceolate-acuminate, much nerved. *Ext. valve* of *corolla* linear-lanceolate, much nerved, scabrous, rarely hairy. *Int.* one truncated, margins ciliated.

2. B. *pinnatum*, Beauv. *Heath False Brome-grass.* Spike erect; spikelets nearly cylindrical, distichous, hairy; awns shorter than the florets. *Lindl. Syn. p.* 297. *Br. Fl. ed.* 3. *p.* 57.—*Festuca pinnata, E. Fl. v.* i. *p.* 150.—*Bromus pinn. Linn.*—*E. Bot. t.* 780.

Found in open fields and heathy places, on chalk, in England. *Fl.* July. ♃.—Mr. J. Drummond states that he found it in hedges near Kinsale, and Mr. Bradburry is said to have found it in similar situations in the Queen's County. I have now, however, reason to think that the latter mistook *B. sylvaticum* for it, and I have no specimen from the former station.

27. LOLIUM. *Linn.* Darnel.

Calyx of one *valve*, solitary, many-flowered. *Corolla* of two *valves*; *ext.* awnless or with an awn below the extremity.—Name, "quasi *dolium*, δολιον, quod dolosum sit vel adulterinum. Fit enim e corruptis Tritici ac Hordei seminibus."

The ancients, as well as the moderns, attributed poisonous qualities to the *L. temulentum;* and even now it is believed in some countries that the *Wheat* changes into *Darnel.*

Triandria. Digynia.

1. L. *perenne,* Linn. *Perennial Darnel or Rye-grass.* Spikelets much longer than the calyx; florets awnless, linear-oblong, compressed; root perennial. *Br. Fl. ed.* 3. *p.* 57. *E. Fl. v.* i. *p.* 173. *E. Bot. t.* 315.

Waste places, way-sides and pastures, frequent. *Fl.* June, July. ♃.—One to two feet high. *Spike* with the general aspect of *Triticum repens,* sometimes from luxuriance compound. *Florets* linear-oblong, nerved.—A most valuable grass for the agriculturist, and much employed with *clover* for artificial pasture and hay, particularly in Scotland.

2. L. *arvense,* With. *Short-awned annual Darnel.* Spikelets equal in length with the calyx; florets with short soft (imperfect) awns; root annual. *Br. Fl. ed.* 3. *p.* 57. *E. Fl. v.* i. *p.* 174. *E. Bot. t.* 1135.

Fields, with the following, of which it is now generally thought but a *var. Fl.* July. ⊙.

3. L. *temulentum,* Linn. *Bearded Darnel.* Spikelets equal in length with the calyx; florets as long as the rigid awns; root annual. *Br. Fl. ed.* 3. *p.* 57. *E. Fl. v.* i. *p.* 174. *E. Bot. t.* 124.

Corn-fields, too common, in several parts of the country. *Fl.* July. ⊙.—The seeds mixed with wheat and made into bread, have proved highly injurious to those who have eaten it.

28. ROTTBOLLIA. *Linn.* Hard-grass.

Calyx of two valves; *valves* unilateral, sometimes combined into one, 1—2-flowered. *Corolla* 2-valved, awnless, imbedded, as it were, in a thick *rachis.*—Named from *Rottböl,* a Professor of Botany at Copenhagen.

Triandria. Digynia.

1. R. *incurvata,* Linn. *Sea Hard-grass.* Spike cylindraceo-subulate; calyx 2-valved, valves united at the base. *Br. Fl. ed.* 3. *p.* 57. *E. Fl. v.* i. *p.* 175. *E. Bot. t.* 760.

Sea-coast, in salt marshes. Near Irishtown, Portmarnock, banks of the river Lee, below Cork, South Isles of Arran, and other places, abundant. *Fl.* July, Aug. ⊙.—From two to six or eight inches high, more or less curved, especially in the curious spike.

The two following Genera were left out by mistake in their proper places. Anthoxanthum should have been placed before Alopecurus, and Nardus after Lolium.

29. ANTHOXANTHUM. *Linn.* Vernal-grass.

Calyx of two valves, glumaceous, 1-flowered. *Corolla* double,

each of two valves; the *exterior* awned, the *interior* small, awnless.—Name, *ανθος*, *a flower*, and *ξανθος*, *yellow*, from the yellowish hue of the spikes, especially in age.
Diandria. Digynia.

1. A. *odoratum*, Linn. *Vernal-grass.* Panicle spiked, oblong; flowers upon partial stalks and longer than their awns. *Br. Fl. ed.* 3. *p.* 14. *E. Fl. v.* i. *p.* 37. *E. Bot. t.* 647.

Meadows, pastures, and woods, abundant, often very alpine. *Fl.* May, June. ♃.—A foot high, affording an agreeable smell in the act of drying, like that of *Woodruff (Asperula odorata)*, and giving the well known scent to new mown hay. *Leaves* short. *Panicle* compact, spiked, yellowish in age. *Stamens* only two, in which respect it differs from all our other grasses.

30. NARDUS. *Linn.* Mat-grass.

Calyx none. *Corolla* of two valves.—Named from *ναρδος*, formerly given to an odoriferous substance, but not applicable in this case. *Triandria. Monogynia.*

1. N. *stricta*, Linn. *Mat-grass.* Spike erect, slender, the florets all pointing one way. *Br. Fl. ed.* 3. *p.* 32. *E. Fl. v.* i. *p.* 70. *E. Bot. t.* 290.

Moors and heaths, most abundant. *Fl.* June. ♃.—A grass of simple structure, growing in short tufts, so coarse and rigid that cattle will not eat it. *Culms* and *leaves* setaceous. *Spike* long, erect, grooved, and toothed at short distances for the insertion of the florets. *Valves* of the *corolla* lanceolate; outer one coriaceous, purplish-green, tapering gradually into an awn; inner smaller, awnless, membranous. *Stamens* three. *Style* and *stigma* single.

ORD. 90. CYPERACEÆ. *Juss.* Sedge Family.

Flowers perfect or separated, each with a glume or chaffy scale. Perianth none or resembling bristles, rarely membranaceous, 1—3-valved. Stamens hypogynous, definite, generally 3, (sometimes 1—2, or 4—6, scarcely ever 12;) anthers inserted by the base, entire, 2-celled. Ovary 1-seeded, with the ovule fixed to the bottom of the cell: style one, trifid, rarely bifid. Stigmas undivided, sometimes bifid. Fruit a crustaceous or bony nut. Albumen of the same form as the nucleus. Embryo lenticular, homogeneous, placed at the base of the seed, on the outside of the albumen. Plumule inconspicuous. —*Herbaceous plants, as extensively distributed as the grasses. Stems (Culms,* Br.*) rounded or triquetrous, sometimes many-angled, generally without joints, occasionally jointed and branched.*

Leaves sheathing, the sheath entire, sometimes cleft in age: the floral ones often sessile. Glumes spicate, the lower sometimes empty.

1. RHYNCHOSPORA. *Vahl.* Beak-rush.

Spikelets few-flowered, the *glumes* of one valve, imbricated on all sides, the lower one smaller, empty. *Bristles* several, included, inversely toothed. *Style* subulate, bifid, spreading at the base. *Nut* crowned with the persistent more or less articulated *style.*—Name from *ρυγκος*, a *beak*, and *σπορα*, a *seed.* (Very different in habit from *Eleocharis*, but too near in generic character.) *(Hook.)*

Triandria. Monogynia.

1. R. *alba*, Vahl. *White Beak-rush.* Spikelets in a compact corymb, as long as the outer bracteas; leaves narrow, linear. *Br. Fl.* 1. *p.* 20. *E. Fl. v.* i. *p.* 52. *(Schœnus albus, Linn.) E. Bot. t.* 985.

Turfy bogs in the southern, western, and northern counties. *Fl.* June—Aug. ♃ —Whole plant smooth and slender, from six to twelve inches high. *Spikelets* of flowers white or whitish, collected so as to form a level surface at the top.

2. R. *fusca*, Sm. *Brown Beak-rush.* Spikelets in an oval head, much shorter than the outer bracteas; leaves almost filiform. *Br. Fl.* 1. *p.* 20. *E. Fl. v.* i. *p.* 52. *(Schœnus fuscus, Linn.) E. Bot. t.* 1575.

Bogs near the upper lake of Killarney, and in Cunnamara. *Fl.* July, Aug. ♃.—Heads of *flowers* oval, rich brown; *spikelets* larger than in the last, and the stigmas more protruded.

2. BLYSMUS. *Panz.* Blysmus.

Spikelets bracteated, arranged on a zigzag rachis into a distichous compressed *spike. Glumes* of one valve, imbricated on all sides, the outermost gradually the largest, empty. *Bristles* several or none. *Fruit* compressed, oval, gradually tapering into the persistent *style.*—Name from *βλυσμος*, *source* or *spring*, near which the species usually grow.

Triandria. Monogynia.

1. B. *rufus*, Link. *Narrow-leaved Blysmus.* Bracteas all equal, membranaceous; bristles none; leaves very narrow, grooved. *Br. Fl.* 1. *p.* 22. *Schœnus rufus, E. Bot. t.* 1010.—*Scirpus rufus, Schrad.—E. Fl. v.* i. *p.* 59.

Marshes near the sea. Plentiful between Baldoyle and Howth. Near Donaghadee; *Mr. Templeton.* By the side of the Foyle, near Derry; *Mr. D. Moore. Fl.* July. ♃.—*Root* creeping, with downy fibres. *Stem* four to six inches high, round, quite smooth and even.

3. SCHŒNUS. *Linn.* Bog-rush.

Spikelets two ranked, 1—3-flowered, outer *glumes* smaller, empty. *Bristles* small or none. *Style* deciduous.—Name from *κοινος*, or *σκοινος*, a *cord*, because a kind of cordage was anciently made from plants of this tribe.
Triandria. Monogynia.

1. S. *nigricans*, Linn. *Black Bog-rush.* Stem rounded; spikelets collected into a rounded head; shorter than the outer bracteas. *Br. Fl.* 1. *p.* 19. *E. Fl. v.* i. *p.* 50. *E. Bot. t.* 1121.

Turfy bogs in mountainous districts, and sandy marshy places near the sea. Plentiful at Portmarnock. In Cunnamara, where it is very abundant, it is well known by the name of *black Keib*. *Fl.* June, July. ♃.—Well distinguished by its rigid habit, nearly setaceous leaves, and the dark brown, almost black heads of flowers.

4. ELEOCHARIS. *Br.* Spike-rush.

Glumes of one valve, imbricated on all sides, uniform, scarcely any empty. *Bristles* (4—12) toothed, rarely none. *Style* bifid or trifid, its dilated base jointed upon the germen. *Nut* mostly lenticular, crowned with the broad base of the indurated style.—*Marsh plants.* Stems *simple, leafless, sheathed at the base.* Spike *solitary, terminal, erect, not leafy. Br.*—Name from *ἕλος*, *ἕλεος*, *a marsh*, and *χαιρω*, *to delight*, from its place of growth.—This genus, if it ought to be kept distinct from *Scirpus*, is better distinguished by the solitary spike than by any character taken from the jointed or dilated base of the style. It is again divided by some Botanists, and the genera *Isolepis* Br. and *Eleogiton* Link, constituted.
Triandria. Monogynia.

1. E. *palustris*, Br. *Creeping Spike-rush.* Stem rounded; root much creeping; stigmas two; fruit lenticular, plano-convex, shorter than the four bristles; outer glume smaller than the rest. *Br. Fl.* 1. *p.* 23. *E. Fl. v.* i. *p.* 63. (*Scirpus palustris, Linn.*) *E. Bot. t.* 131.

Ditches and wet marshy places, frequent. *Fl.* June, July. ♃.—*Root* creeping, black and shining as well as the external sheaths of the stem. *Bristles* in the flower longer than the ripe fruit.

2. E. *multicaulis*, Sm. *Many-stalked Spike-rush.* Stem rounded; root scarcely creeping; stigmas three; fruit obovate, triquetrous, longer than the six bristles; outer glumes smaller than the rest. *Br. Fl.* 1. *p.* 23. *E. Fl. v.* i. *p.* 64.—*Scirpus multicaulis, E. Bot. t.* 1187.

Turfy bogs. First observed in Ballygowan Bog, County of Down, by Mr. Templeton, in 1809. County of Derry; *Mr. D. Moore.* *Fl.* July. ♃.—*Root* tufted, with many long fibres. Whole plant rather smaller than the preceding. *Stems* very numerous, eight or ten inches high, sometimes more, spreading loosely, with one or two tight purplish sheaths at the base. *Leaves* none. *Spike* smaller, more acute and slender, than in the last, and rather darker coloured. One or two of the lower flowers are often viviparous. *Glumes* obtuse.

3. E. *pauciflora*, Link. *Chocolate-headed Spike-rush.* Stem rounded, its sheaths leafless; spike ovate, naked, the two outer glumes the largest, obtuse, shorter than the spike; stigmas three; style scarcely deciduous, not jointed. *Br. Fl.* 1. *p.* 23. —*Scirpus pauciflorus, E. Bot. t.* 1029. *E. Fl. v.* i. *p.* 55.

Moory ground, not unfrequent. *Fl.* July. ♃.—Much smaller than the last. *Fruit* pale, obovate, triquetrous, terminated by the withered rigid style, not swollen at the base nor jointed, gradually tapering from the obtuse point of the fruit. *Roots* fibrous, sending out jointed runners.

4. E. *cæspitosa*, Link. *Scaly-stalked Spike-rush.* Stem rounded, or slightly compressed *(Wilson)*; sheaths with subulate leaves, their two outer glumes (fertile) longer than the very small spikes, and terminating in long rigid points; stigmas three; style deciduous; fruit mucronated with the narrow persistent base of the style. *Br. Fl.* 1. *p.* 24.—*Scirpus cæspitosus, E. Bot. t.* 1029. *E. Fl. v.* i. *p.* 55.

Moors and moist heathy places, common. *Fl.* June, July. ♃.—*Stems* numerous, from three to twelve inches high, in dense tufts, erect, naked, except at the base, where they bear two or three very short *leaves*, with long sheaths, besides numerous tumid, furrowed, polished, permanent, radical, external scales. *Spikes* solitary, small, reddish-brown.

5. E. *acicularis*, Roem. et Sch. *Least Spike-rush.* Stem setaceous, compressed, grooved; sheaths leafless; spike ovate, acute; glumes equal, acute; stigmas three; bristles none. *Br. Fl.* 1. *p.* 24. *E. Fl. v.* i. *p.* 64.—*Scirpus acicularis, E. Bot. t.* 749.

Sides of lakes and rivers. Banks of the Shannon near Portumna. Bann-river near Portglenone; *Mr. Templeton* and *Mr. D. Moore.* Lough Erne; *Dr. Scott.* *Fl.* July, Aug. ♃.—The most delicate of the *Spike-rushes.* *Root* fibrous, with filiform runners. *Fruit* obovate oblong, pale yellow, beautifully impressed with dotted lines, tipped with the almost globose base of the style.

6. E. *fluitans*, Hook. *Floating Spike-rush.* Stem compressed, branched; spikes ovate; glumes nearly equal, obtuse; stigmas two; bristles none; fruit obovate, plano-convex, tipped with the narrow base of the style. *Br. Fl.* 1. *p.* 24.—*Scirpus fluitans, E. Bot. t.* 216. *E. Fl. v.* i. *p.* 56.

Ditches, still lakes, and pools of water that are sometimes dried up. Marsh on Howth, Cunnamara, &c. *Fl.* June, July. ♃.—*Stem* zigzag, most slender in the lower part. *Spike* small, pale green.

5. SCIRPUS. *Linn.* Club-rush.

Glumes of one valve, imbricated on all sides, equal, one or two of the outer ones sometimes sterile. *Bristles* sometimes wanting. *Style* continuous, deciduous, leaving only a small mucro.—Name, according to Theis, from *Cirs*, in Celtic, which makes *Cors* in the plural, whence *chorda* in Latin, and *cord* in English; the stems having been formerly employed for the same purpose as those of *Schœnus.*

Triandria. Monogynia.

1. S. *lacustris*, Linn. *Lake Club-rush or Bull-rush.* Spikelets in compound lateral umbels, mostly shorter than the rounded almost leafless stem. *Br. Fl.* 1. *p.* 20. *E. Fl. v.* i. *p.* 56. *E. Bot. t.* 666.

Margins of lakes and rivers. *Fl.* July, Aug. ♃.—*Root* thick, creeping. *Stems* six to eight feet high, soft, spongy, smooth. *Leaves* at the base, one or two, short, with long sheaths. *Panicle* various in luxuriance, or number of *spikes*, which are brown and fringed. *Stigmas* three, rarely but two. *Fruit* obovate, triquetrous, having six rough bristles at the base. The *stems* are used for mats and chair-bottoms, and coopers use them for filling the spaces between the seams of casks.

2. S. *glaucus*, Smith. *Glaucous Club-rush.* Stem round, naked, glaucous; panicle cymose, not higher than the bractea; spikes ovate, conglomerate; stigmas two. *Sm. in E. Fl. v.* i. *p.* 57. *E. Bot. t.* 2321.—*S. lacustris*, *β. Br. Fl.* 1. *p.* 20.

Salt-water ditches and pools. On the strand between Clontarf and Kilbarrick, and lake near Sandymount. *Fl.* Aug. ♃.—From three to four feet high, of a glaucous hue. *Panicle* less compound, than in the last. *Spikes* more crowded, darker, with broader *glumes* dotted with purple. I have cultivated this plant, along with the last, in the pond at the College Botanic Garden, for the last ten years, where it has never attained above half the height of the other, and still retains its glaucous hue.

3. S. *setaceus*, Linn. *Bristle-shaped Club-rush.* Stems compressed, with one or two leaves at the base; spikelets about two, terminal; general bractea erect, leafy, much shorter than the stem; fruit ribbed, obovate, and marked with transverse lines; bristles none. *Br. Fl.* 1. *p.* 21. *E. Fl. v.* i. *p.* 58. *E. Bot. t.* 1693.—*Isolepis setacea, Br.*

Moist gravelly places, frequent. *Fl.* July, Aug. ♃.—*Stems* tufted, two to five inches high, very slender. *Stamens* two. *Stigmas* three.

4. S. *Savii*, Spreng. *Savi's Club-rush.* Stem round, leafy below; spikelets 1—3, terminal, shorter than the unequally two-leaved involucre; fruit subglobose, rough with slightly elevated points; bristles none. *Hook. in E. Bot. Suppl. t.* 2782. *Br. Fl. ed.* 3. *p.* 28.—*Isolepis Saviana, Roem. et Sch.*—*Scirpus*

filiformis, *Savi.*—*β. monostachys;* spikelet solitary, with a shorter involucral bractea. *Hook. l. c.*

First observed in Ireland by Mr. Shuttleworth, in wet bogs near Rynvile, Cunnamara, where it has since been found by Mr. Babington of St. John's College, Cambridge, who also pointed it out to me on the Hill of Howth, in August 1835, where it had been mistaken for *S. setaceus.* *β.* was found near Cork by the late Doctor Sealy. *Fl.* July. ♃.—*α.* has since been observed in several other parts of the country. Mr. Moore finds it more abundant in the County of Derry than the other species, and it appears to be the most common of the two in Ireland. In habit much resembling the last, but readily distinguished by its peculiar fruit.

5. S. *maritimus*, Linn. *Salt-marsh Club-rush.* Stem leafy, triangular; spikelets terminal, clustered, stalked and sessile; involucre of many foliaceous leaflets; glumes with a mucro between the acute segments of the notch. *Br. Fl.* 1. *p.* 21. *E. Fl. v.* i. *p.* 61. *E. Bot. t.* 542.

Salt marshes, frequent. *Fl.* July, Aug. ♃.—*Root* creeping, sometimes swelling into knots or tubers. *Leaves* frequently longer than the stem, flat, acuminate. *Stigmas* three. *Bristles* three to four, accompanying the smooth obovato-triangular fruit.

6. S. *sylvaticus*, Linn. *Wood Club-rush.* Stem triangular, leafy; cyme terminal, many times compounded; involucre of many foliaceous leaflets; glume entire, acute. *Br. Fl.* 1. *p.* 21. *E. Fl. v.* i. *p.* 62. *E. Bot. t.* 919.

Banks of the Black-water, and other places in the County of Down; *Mr. Templeton.* Banks of Lough Erne, near Enniskillen; *Rev. Dr. O'Beirne.* Plentiful in the County of Derry; *Mr. D. Moore.* *Fl.* July. ♃.—A handsome species, bearing innumerable small greenish ovate spikelets. *Stems* two to three feet high. *Leaves* broadly linear. *Fruit* with rather short bristles.

6. ERIOPHORUM. *Linn.* Cotton-grass.

Glumes of one valve, imbricated on all sides, nearly equal. *Fruit* accompanied by very long silky hairs.—Name from ἔριον, *wool*, and φερω, *to bear*.

Triandria. Monogynia.

* *Spike solitary.*

1. E. *vaginatum*, Linn. *Hare's-tail Cotton-grass.* Stem above triangular; sheaths below with long setaceous leaves, above leafless, obtuse, inflated; spike ovate. *Br. Fl.* 1. *p.* 25. *E. Fl. v.* i. *p.* 66. *E. Bot. t.* 873.

Turf-bogs and barren moors, frequent; especially in mountainous districts. *Fl.* March. ♃.

* * *Spikes many.*

ow +. 2. E. *polystachion*, Linn. *Broad-leaved Cotton-grass.* "Stems round; leaves flat, with a triangular point; stalks of the spikes smooth; hairs thrice the length of the spike." *Smith.—E. Fl. v.* i. *p.* 67. *Br. Fl.* 1. *p.* 25. *E. Bot. t.* 563. angust p. ant. Koch

Bog-holes on Feather-bed Mountain, County of Dublin. *Fl.* April—June. ♃.—Readily distinguished from *E. angustifolium* by its smooth, broad and flat leaves, which have a narrow acute keel: in other characters it very much resembles it.

! 3. E. *pubescens*, Sm. *Downy-stalked Cotton-grass.* "Stem angular upwards; leaves flat, lanceolate, with a triangular point; stalks of the spikes downy; hairs twice the length of the spike." *Smith. E. Fl. v.* i. *p.* 68. *Br. Fl.* 1. *p.* 25. *Hook. in E. Bot. Suppl. t.* 2633. latif. Gl. Hopp.

Marsh near Enniskerry, and other places in the County of Wicklow. *Fl.* April—June. ♃.—This may be readily distinguished from the following species by its flat, broader, and shorter leaves, and pubescent or rather scabrous peduncles. Mr. Winch of Newcastle first drew my attention to it, at the marsh near Enniskerry, as being the true *E. pubescens.* I had previously supposed it to be *E. polystachion* of *E. Bot.*

4. E. *angustifolium*, Roth. *Common Cotton-grass.* Stem nearly round; leaves linear, triangular, channelled towards the base; stalks of the spikes smooth; hairs four times the length of the spike. *Br. Fl.* 1. *p.* 25. *E. Fl. v.* i. *p.* 69. *E. Bot. t.* 564. angust. Koch.

Turf-bogs and muddy places, common. *Fl.* April. ♃.—Varying in size, and in the length and breadth of its leaves. When growing in bog-holes, it assumes the appearance of *E. polystachion* of *E. Bot.*, and is probably only a variety of that species.

7. CLADIUM. *Schrad.* Twig-rush.

Perianth single, glumaceous. *Glumes* of one piece or valve, one-flowered, imbricated; outer ones sterile. *Fruit, a nut* with a loose external coat, destitute of bristles at the base.—Name from κλαδος, a *branch;* so called, perhaps, from the many branches bearing spikelets.

Diandria. Monogynia.

1. C. *Mariscus*, Br. *Prickly Twig-rush.* Panicle much divided, leafy; spikelets capitato-conglomerate; stem rounded, leafy; margins of the keels and leaves rough. *Br. Fl.* 1. *p.* 13. *E. Fl. v.* i. *p.* 36.—*Schœnus Mariscus, Linn. E. Bot. t.* 950.

By the sides of small lakes in Cunnamara, abundant. County of Fermanagh; *Doctor Scott.* Bog near Lough Allan, County of Cork; *Mr. J. Drummond. Fl.* July, Aug. ♃.—In habit very different from

Schœnus, as is the fruit. *Plant* three to five feet high, leafy. *Leaves* rough, almost prickly at the margin and keel. *Glumes* ovate, brown, six to seven in an ovate spikelet; inner ones the longest, generally the two or sometimes three innermost ones floriferous. *Stigmas* generally two.

8. CAREX. *Linn.* Carex or Sedge.

Flowers collected into an imbricated *spike*. *Calyx* (as it is usually called), a scale.—*Barren fl.* *Corolla* none.—*Fertile fl.* *Corolla* of one piece, urceolate, swollen. *Stigmas* 2—3. *Nut* triquetrous, included within the persistent corolla, (which is thus considered to form part of the *fruit*.)—Name; supposed to be derived from *κειρω*, to *shear* or *cut*, in allusion to its sharp leaves and stems. *Monœcia. Triandria.*

* *Spikes simple, solitary.*

1. C. *dioica*, Linn. *Creeping separate-headed Carex.* Spike simple, diœcious; fruit mostly ascending, ovate, shortly acuminated, rough at the margin upwards; leaves and stem smoothish; root creeping. *Br. Fl. ed.* 3. *p.* 392. *E. Fl. v.* iv. *p.* 77. *E. Bot. t.* 543.

Spongy bogs, not unfrequent. *Fl.* May, June. ♃.—A span high. *Stigmas* two.

2. C. *Davalliana*, Sm. *Prickly separate-headed Carex.* Spike simple, diœcious; fruit ovate, much acuminated, recurvato-deflexed, rough at the margins upwards; leaves and stem rough; root tufted. *Br. Fl. ed.* 3. *p.* 392. *E. Fl. v.* iv. *p.* 78. *E. Bot. t.* 2123.

Subalpine bogs? rare. County of Down; *Mr. Templeton. Fl.* June. ♃.—A span to a foot high, much resembling the last, which, as Doctor Hooker states, is probably sometimes mistaken for it.

3. C. *pulicaris*, Linn. *Flea Carex.* Spike simple, upper half with barren flowers; fruit lax, oblongo-lanceolate, acuminate, reflexed; stigmas two. *Br. Fl. ed.* 3. *p.* 392. *E. Fl. v.* iv. *p.* 78. *E. Bot. t.* 1051.

Bogs, frequent. *Fl.* May, June. ♃.—A span high. *Stems* smooth. *Leaves*, as in all this division, setaceous or filiform. *Fruit* dark brown, shining, smooth.

* * *Spikelets aggregated, their uppermost flowers mostly sterile. Stigmas two.*

4. C. *arenaria*, Linn. *Sea Carex.* Lower spikelets fertile, upper ones sterile, all crowded into an oblong interrupted head; fruit with a membranous margin, shorter than the calyx; bracteas membranaceous, lower ones somewhat leafy; stem trian-

gular; leaves plane. *Br. Fl. ed.* 3. *p.* 393. *E. Fl. v.* iv. *p.* 85. *E. Bot. t.* 928.

Sandy sea-shores, frequent. *Fl.* June. ♃.—*Root* excessively long and creeping. *Stems* rough, eight inches to a foot high. *Fruit* with a green membranous wing. It is of great service in binding the sand.

5. C. *intermedia*, Gooden. *Soft brown Carex.* Inferior and terminal spikelets fertile, all crowded into an oblong interrupted head, the intermediate ones sterile; fruit acutely margined, longer than the calyx; bracteas membranaceous, the lower ones somewhat leafy; stem triangular; leaves plane. *Br. Fl. ed.* 3. *p.* 393. *E. Fl. v.* iv. *p.* 86. *E. Bot. t.* 2042.

Marshy ground and wet meadows. *Fl.* June. ♃.—*Root* creeping. *Stem* one to one and a half foot high. *Spikes*, or heads of spikelets, similar in general appearance to the last. *Fruit* large, not so distinctly winged as gradually flattened towards the margin, more striated on its flat or inner side, the beak broader at its summit. *Stem* much taller, and the *leaves* confined to the lower part of it.

6. C. *divisa*, Huds. *Bracteated Marsh Carex.* Spikelets sterile at their extremity, crowded into a somewhat ovate head, the lower ones simple or compound, with a leafy erect bractea at their base; fruit roundish-ovate, convex on one side, slightly concave on the other, acutely angular, cloven at the point. *Br. Fl. ed.* 3. *p.* 393. *E. Fl. v.* iv. *p.* 87. *E. Bot. t.* 1096.

Marshy places, especially near the sea. Salt marsh at Aghris, Cunnamara; *Doctor Wade.* County of Cork; *Mr. J. Drummond. Fl.* May, June. ♃.—*Stem* about a foot high: lower *bracteas* with a long leafy point.

7. C. *muricata*, Linn. *Greater prickly Carex.* Spikelets sterile at their extremity, slightly compound, collected into an oblong rather dense spike; fruit plano-convex, ovato-acuminate, acute, angular, spreading, rough at the beak. *Br. Fl. ed.* 3. *p.* 393. *E. Fl. v.* iv. *p.* 88. *E. Bot. t.* 1097.

Marshy and especially gravelly pastures, and ditch-banks in various parts of the country. *Fl.* May, June. ♃.—One to two feet high, slender. *Bracteas* small, lanceolate, subsetaceous. *Fruit* yellow-brown, broad, rather large.

8. C. *divulsa*, Gooden. *Grey Carex.* Spikelets sterile at their extremities, distant, upon an elongated spike; fruit plano-convex, ovato-acuminate, acute, angular, "erect," *(Smith)* rough at the beak. *Br. Fl. ed.* 3. *p.* 394. *E. Fl. v.* iv. *p.* 89. *E. Bot. t.* 629. *(young spike.)*—*C. muricata, β. Wahl.*—*Hook. Scot.* 1. *p.* 262.

Grassy hedges near Killiney-bay. *Fl.* May, June. ♃.—Very much resembling the last. The colour is paler, the *spikes* more elongated and slender, with more distant *spikelets.* Probably, as Dr. Hooker thinks, only a variety of the last.

9. C. *vulpina*, Linn. *Great Carex.* Spikelets sterile at their extremities, compound, collected into a cylindrical crowded

spike; fruit ovato-acuminate, plano-convex, acute, angular, divergent; stem very acutely triangular; leaves broad. *Br. Fl. ed.* 3. *p.* 394. *E. Fl. v.* iv. *p.* 90. *E. Bot. t.* 307.

Wet shady places and ditches. *Fl.* June. ♃.—Two feet or more high. *Stem* stout, rough, as well as the broad *leaves* at their margin. *Bracteas* small, setaceous. *Spike* large, greenish. *Fruit* pale, rough at the margin of the lengthened *beak*, and bifid at the point.

10. C. *teretiuscula*, Gooden. *Lesser panicled Carex.* Spikelets sterile at their extremity, scarcely compound, and collected into a slender cylindrical interrupted spike; fruit ovato-acuminate, even above, not margined, gradually attenuated into rather a long serrulated bifid beak; stem bluntly triangular; leaves very narrow. *Br. Fl. ed.* 3. *p.* 394. *E. Fl. v.* iv. *p.* 91. *E. Bot. t.* 1065.

Boggy, watery meadows. In the marble-hole, Cranmore, near Belfast; *Mr. Templeton.* *Fl.* May, June. ♃.—Resembling the following species, but does not, like it, grow in clumps. It is also much smaller, with far narrower *leaves*, blunter *stems*, with browner, more acuminated *fruit*, which is less broad, less gibbous beneath, less flat on the upper side, destitute of margin and of raised lines at the base.

11. C. *paniculata*, Linn. *Great panicled Carex.* Spikelets sterile at their extremity, compound, collected into a sort of panicled spike; fruit ovate, gibbous beneath, slightly margined, flat above, and striated at the base, acuminated into rather a short bifid serrulated beak; stem acutely triangular; leaves broad. *Br. Fl. ed.* 3. *p.* 394. *E. Fl. v.* iv. *p.* 92. *E. Bot. t.* 1064.

Swampy and spongy bogs, frequent. *Fl.* June. ♃.—*Roots* densely tufted. *Stem* much stouter than the last, two to three feet high, and essentially distinguished by having three acute rough angles, whose intermediate spaces are flat, striated, without any central rib.

* * * *Spikelets aggregated, their lowermost flowers sessile. Stigmas two.*

12. C. *stellulata*, Gooden. *Little prickly Carex.* Spikelets few (3—4), sterile at their base, roundish, distant; fruit ovate, much attenuated, plano-convex, acute, angular, spreading, rough at the margin. *Br. Fl. ed.* 3. *p.* 395. *E. Fl. v.* iv. *p.* 80. *E. Bot. t.* 806.

Marshes and heathy places, common. *Fl.* May, June. ♃.—A span to a foot high. *Leaves* nearly as long as the *stem.* Distinguished by its few, much-beaked capsules, placed in small rounded *spikelets*, and which spread, when ripe, in every direction.

13. C. *curta*, Gooden. *White Carex.* Spikelets sterile at their base, about five, rather distant, elliptical; bracteas very minute (except the lower one); fruit broadly ovate, acute, plane above, slightly convex beneath, subobtusangular, faintly

striated, as long as the scales. *Br. Fl. ed.* 3. *p.* 395. *E. Fl. v.* iv. *p.* 81. *E. Bot. t.* 1386.

Boggy ground on Slieve Gallion, County of Derry; *Mr. D. Moore.* Bogs in several places in the County of Down; *Mr. Campbell. Fl.* June. ♃.—Distinguished by its pale elliptical *spikelets*, and imbricated, compressed, almost elliptical *fruit.*

14. C. *Buxbaumii*, Wahl. *Buxbaum's Carex.* "Spikelets about four, rather distant, erect; nearly sessile, elliptical; the upper one sterile at the base; stigmas three, which are short; fruit elliptical, substipitate, slightly downy, bicuspidate; scales ovate-lanceolate, longer than the fruit, in the male having a short, in the female a long awn; stem triangular, much longer than the leaves, the edges roughish upwards; bracteas leafy, little exceeding the stem; sheath none." *Hook.* in litt.

Found by Mr. D. Moore, in July 1835, on a small island in Lough Neagh, near Toom-bridge. ♃.—Mr. Moore having sent Dr. Hooker specimens of the above interesting addition to our Flora, for his opinion, he has determined it to be *C. Buxbaumii* of *Wahlenberg*, and has favoured us with the above correct description of it. In some respects it approaches *C. tomentosa*, but that has fewer spikes, a terminal spike wholly male, differently formed and more downy fruit, and very different scales.

15. C. *ovalis*, Gooden. *Oval spiked Carex.* Spikelets about six, sterile at the base, oval, approximate; fruit as long as the calyx, ovato-acuminate, compressed, plano-convex, striated, with a broad membranous margin, rough at the edge; the beak bifid. *Br. Fl. ed.* 3. *p.* 395. *E. Fl. v.* iv. *p.* 82. *E. Bot. t.* 806.

Bogs and marshy places. *Fl.* June. ♃.—*Stems* one foot high, triangular. *Spikelets* brownish-green, shining. *Calyx-scales* concealing the *fruit. Bracteas* small, upper ones resembling the calyx-scales.

16. C. *remota*, Linn. *Remote Carex.* Spikelets several, (small) sterile at their base, very distant; fruit longer than the calyx, oblongo-ovate, shortly acuminate, plano-convex, acute, angular, bifid at the point; bracteas very long and narrow, leafy, reaching beyond the spike. *Br. Fl. ed.* 3. *p.* 396. *E. Fl. v.* iv. *p.* 84. *E. Bot. t.* 832.

Woods and moist shady places. *Fl.* June. ♃.—Whole plant very slender, pale green, one to one foot and a half high, leafy, smooth and roundish below, triangular and rough-edged in the upper part. *Leaves* narrow.

17. C. *axillaris*, Gooden. *Axillary clustered Carex.* Spikelets several, sterile at their base, very distant; fruit longer than the calyx, oblongo-ovate, shortly acuminate, plano-convex, acute, angular, the beak deeply bifid; bracteas setaceous, lower one long, the rest scarcely so long as the spike. *Br. Fl. ed.* 3. *p.* 396. *E. Fl. v.* iv. *p.* 84. *E. Bot. t.* 993.

Ballyphehane-bog, near Cork; *Mr. J. Drummond.* Wet bank at Luggelaw, County of Wicklow; *Doctor MCreight. Fl.* June. ♃.—Stouter and taller than the last; *spikelets* with more numerous *flowers*, lower one compound. *Cal.-scales* with two, close, green, generally tough nerves, reaching to the summit.

* * * * *Barren and fertile flowers in separate spikes: the barren mostly solitary. Bracteas leafy, often sheathing.*

† *Stigmas three.*

18. C. *pendula*, Huds. *Great pendulous Carex.* Sheaths elongated, nearly equal to the flower-stalks; fertile spikes cylindrical, very long and drooping; fruit ovate, shortly acuminate, bifid at the extremity, closely imbricated; leaves broad. *Br. Fl. ed.* 3. *p.* 397. *E. Bot. t.* 2315. *E. Fl. v.* iv. *p.* 95.

Moist woods and ditches. Ditch-bank on the east side of the Royal Canal between the north road and Glassnevin, in Powerscourt-woods and other places in the County of Wicklow. Near Belfast; *Mr. Templeton. Fl.* May, June. ♃.—Well distinguished by its long, pendulous, cylindrical *spikes.*

19. C. *strigosa*, Huds. *Loose pendulous Carex.* Sheaths elongated, equal to the flowerstalks; fertile spikes slender, filiform, nearly erect; fruit ovato-lanceolate, nerved, slightly recurved, loosely imbricated; leaves rather broad. *Br. Fl. ed.* 3. *p.* 397. *E. Fl. v.* iv. *p.* 95. *E. Bot. t.* 994.

Moist woods and shady places. Plentiful at the Dargle, and Woodlands. *Fl.* May, June. ♃.—One to two feet high. *Cal.-scales* a little shorter than the *fruit.* Readily distinguished from the following species by its erect and longer fertile spikes.

20. C. *sylvatica*, Huds. *Pendulous Wood Carex.* Sheaths half as long as the flower-stalks; fertile spikes filiform, rather slender, slightly drooping; fruit broadly ovate, much acuminated, cleft at the point; leaves narrow. *Br. Fl. ed.* 3. *p.* 397. *E. Fl. v.* iv. *p.* 96. *E. Bot. t.* 995.

Moist woods, frequent. *Fl.* May, June. ♃.—Similar to the last; but the spikes are shorter and broader; the *fruit* very different, glabrous, and so acuminated as to terminate in a long *beak. Cal.-scales* longer in proportion.

21. C. *spierostachya*, Swartz. *Dense short-spiked Carex.* "Sheaths shorter than the flower-stalks; fertile spikes about three, distant, erect, ovate, dense, many-flowered; fruit ovate, triangular, ribbed, smooth, with a deeply cloven beak, membranous at the orifice." *E. Fl. v.* iv. *p.* 98. *E. Bot. Suppl. t.* 2770. *Br. Fl. ed.* 3. *p.* 398.—*C. distans, Fl. Dan. t.* 1049.

Mourne Mountains, County of Down; *Doctor MCreight*, from whom I received specimens. *Fl.* July, Aug. ♃.—*Stem* from nine to fifteen inches high, erect, firm, triangular, smooth, leafy at the base. *Leaves* chiefly radical, upright, firm, flat, taper-pointed, for the most part smooth, except a slight and marginal roughness, their height scarcely half that of the stem.

22. C. *limosa*, Linn. *Mud Carex.* Sheaths extremely short, scarcely any; fertile spikes oblongo-ovate, pendulous; bracteas subsetaceous; calyx acute, as long as the fruit; fruit elliptico-rotundate, striated, shortly mucronated. *Br. Fl. ed.* 3. *p.* 398. *E. Fl. v.* iv. *p.* 102. *E. Bot. t.* 2043.

Bogs and marshes. Ballygowan bog, and near Donaghadee; *Mr. Templeton.* Bog near Saintfield, County of Down; *Mr. J. Campbell. Fl.* June. ♃.—*Root* ascending obliquely. *Stems* eight to ten inches high. *Leaves* very narrow. *Fertile spikes* two; *cal.-scales* dark brown, subapiculate. *Fruit* greenish-brown.

23. C. *Pseudo-cyperus*, Linn. *Cyperus-like Carex.* Sheaths scarcely any (except sometimes to the lowermost bractea); fertile spikes upon long foot-stalks, cylindrical, pendulous; bracteas very leafy; calyx setaceous; fruit oblong, very much acuminate, cloven at the tips, striated. *Br. Fl. ed.* 3. *p.* 399. *E. Fl. v.* iv. *p.* 101. *E. Bot. t.* 242.

Moist places, and by the sides of lakes and ponds. Marsh in Dunmore Woods, Queen's County. Marsh by the river Lee; *Mr. Drummond.* Drains at Cranmore; *Mr. Templeton. Fl.* June. ♃.—*Stems* two or three feet high, acutely angular. *Leaves* half an inch broad.—One of the most beautiful of the genus.

24. C. *pallescens*, Linn. *Pale Carex.* Sheaths scarcely any; fertile spikes pedunculated, oblongo-cylindrical, scarcely pendulous; bracteas subfoliaceous; fruit obovato-elliptical, tumid, striated, obtuse, glabrous. *Br. Fl. ed.* 3. *p.* 400. *E. Fl. v.* iv. *p.* 105. *E. Bot. t.* 2185.

Marshy places, frequent. *Fl.* June. ♃.—A foot or more high. *Leaves* slightly downy. *Spikes* obtuse, pale green. *Fruit* very obtuse.

25. C. *flava*, Linn. *Yellow Carex.* Sheaths short, about equal to the flower-stalks; bracteas long, leafy; sterile spike distinctly stalked; fertile spikes roundish-oval, rather distant; fruit obovate, turgid, spreading, with a long more or less deflexed beak, bifid at the point. *Br. Fl. ed.* 3. *p.* 400. *E. Fl. v.* iv. *p.* 107. *E. Bot. t.* 1294.

Turfy bogs, frequent. *Fl.* May, June. ♃.—Six to eight inches or a foot high. *Bracteas* very foliaceous, the lower one resembling the broad acuminated leaves. *Spikes*, and the whole plant, of a yellowish hue.

26. C. *Oederi*, Ehrh. *Oederian Carex.* Sheaths short, about equal to the flower-stalks; bracteas long, leafy; sterile spike almost sessile; fertile ones roundish-oval, approximate; lower ones subcompound; fruit obovate, turgid, spreading, with a long nearly straight beak, bifid at the point. *Br. Fl. ed.* 3. *p.* 400. *E. Fl. v.* iv. *p.* 107. *E. Bot. t.* 1773.—*C. flava*, β. *Hook. Scot.* 1. *p.* 266.

Bogs and moist heaths, frequent. *Fl.* May, June. ♃.—Resembling the last, but of more stunted growth, the *spikes* also are more compact, and almost clustered.

27. C. *fulva*, Gooden. *Tawny Carex*. Sheaths elongated, shorter than the peduncles; bracteas foliaceous; scales acute; fertile spikes oblongo-ovate, distant; fruit broadly ovate, ascending, glabrous, acuminated into a straight beak, bifid at the point; stem scabrous. *Br. Fl. ed.* 3. *p.* 400. *E. Fl. v.* iv. *p.* 107. *E. Bot. t.* 1295.

Elevated boggy meadows. On many of the Cork and Kerry mountains. Mourne mountains, &c.; *Mr. Templeton.* Derry mountains; *Mr. D. Moore. Fl.* June. ♃.—One foot high; somewhat resembling *C. distans*, but is smaller, with shorter, more lax, paler-coloured and fewer-flowered *spikes;* and acute, not mucronate, *calyx-scales.*

28. C. *extensa*, Gooden. *Long bracteated Carex.* Sheaths very short (scarcely any) with extremely long foliaceous bracteas; fertile spikes nearly sessile, oblong; scales slightly mucronate; fruit ovate, striated, with a short acuminated beak, bifid at the point; leaves very narrow; stem smooth. *Br. Fl. ed.* 3. *p.* 400. *E. Fl. v.* iv. *p.* 108. *E. Bot. t.* 833.

Salt marshes. Near Ballylickey, Bantry, and at Portmarnock. Near Donaghadee; *Mr. Templeton.* Side of the Foyle, and near the mouth of the river Roe, County of Derry; *Mr. D. Moore. Fl.* June. ♃.—Well distinguished by its channelled, narrow, long *leaves* and *bracteas.*

29. C. *distans*, Linn. *Loose Carex.* Sheaths elongated, about equal to the flower-stalks, with leafy bracteas; fertile spikes sometimes compound, remote, oblong, erect; calyx mucronate; fruit ovate, somewhat inflated, subtriquetrous, uniformly nerved, with a rather short beak, bifid at the point. *Br. Fl. ed.* 3. *p.* 401. *E. Fl. v.* iv. *p.* 109. *E. Bot. t.* 1234.

Salt marshes near Sandymount, Baldoyle, and Portmarnock, and other places on the coast, abundant. *Fl.* June. ♃.—Eight inches to two feet high, slender. *Spikes* very distantly placed, their rather long *peduncles* entirely concealed by the sheathing bases of the *bracteas. Scales* of the *calyx* rather pale brown.

30. C. *binervis*, Sm. *Green-ribbed Carex.* Sheaths elongated, about equal to the flower-stalks, with leafy bracteas; fertile spikes remote, cylindrical, the lower ones partly compound, erect; scales mucronate; fruit ovate, scarcely inflated, rather acutely triquetrous, with two principal (green) nerves near the margin at the back, and a rather short beak, bifid at the point. *Br. Fl. ed.* 3. *p.* 401. *E. Fl. v.* iv. *p.* 110. *E. Bot. t.* 1099.

Dry heaths, frequent. *Fl.* June. ♃.—A much stouter and taller plant than the last. Three, or even four feet high, when growing among furze bushes on Howth and other similar situations. *Calyx-scales*, and especially the *fruit*, more highly coloured, the latter more acutely triquetrous, with two nerves near the margin at the back, which are always green.

31. C. *præcox*, Jacq. *Vernal Carex.* Sheaths short (scarcely

any), equal to the flower-stalks; fertile spikes oblong-approximate; scales elliptic-oblong; fruit obovate, subtriquetrous, acute, downy. *Br. Fl. ed.* 3. *p.* 401. *E. Fl. v.* iv. *p.* 111. *E. Bot. t.* 1099.

Dry pastures and heaths, frequent. *Fl.* April, May. ♃.—*Root* creeping. *Stem* three inches to a foot high. *Leaves* short, rather broad. Lower *bracteas* small, but leafy; upper ones very minute.

32. C. *pilulifera*, Linn. *Round-headed Carex.* Sheaths none; bracteas small, foliaceous; fertile spikes sessile, roundish, approximate; scales strongly mucronate; fruit obovato-globose, acute and downy; stems weak, scabrous. *Br. Fl. ed.* 3. *p.* 402. *E. Fl. v.* iv. *p.* 112. *E. Bot. t.* 885.—*C. montana, Linn.*

Heaths and moory ground, frequent. *Fl.* June. ♃.—*Stems* varying very much in height, from six to twelve inches, slender. Readily distinguished by the pubescent, almost spherical *fruit*, which gives name to the species.

33. C. *panicea*, Linn. *Pink-leaved Carex.* Sheaths elongated, shorter than the flower-stalks; fertile spikes subcylindrical, with distant flowers; bracteas leafy; fruit subglobose, somewhat inflated, glabrous, entire at the point. *Br. Fl. ed.* 3. *p.* 402. *E. Fl. v.* iv. *p.* 114. *E. Bot. t.* 1505.

Marshy places and bogs, common. *Fl.* June. ♃.—*Stems* one to one foot and a half high. *Leaves* rather broad, glaucous, rough at the edges. *Calyx-scales* dark brown, the keel green. *Fruit* greenish-brown.

34. C. *recurva*, Huds. *Glaucous Heath Carex.* Sheaths short, scarcely any; bracteas leafy, fertile spikes cylindrical, scarcely drooping, densely imbricated, on long slender stalks; fruit obovato-globose, slightly downy, entire at the small point. *Br. Fl. ed.* 3. *p.* 402. *E. Fl. v.* iv. *p.* 114. *E. Bot. t.* 1506.—*C. Micheliana, E. Bot. t.* 2236, *(fr. glabrous.)*

Moist meadows and barren heathy grounds. *Fl.* June. ♃.—*Leaves* mostly radical, very glaucous. *Stems* about a foot high. *Fertile spikes* two, *barren* ones two or three. *Fruit* closely placed, brownish when ripe.

† † *Stigmas two.*

35. C. *cæspitosa*, Linn. *Tufted Bog Carex.* Sheaths none; bracteas foliaceous, auricled at the base; fertile spikes sessile, cylindrical, obtuse, imbricated, compact; fruit elliptical, compressed, with a very short entire point; leaves mostly erect, narrow-linear. *Br. Fl. ed.* 3. *p.* 403. *E. Fl. v.* iv. *p.* 117. *E. Bot. t.* 1507.

Marshes and wet places, frequent. *Fl.* May, June. ♃.—Eight inches to a foot high. " Root creeping, but not tufted. I suspect it has been, in this respect, confounded with *C. stricta* or *C. rigida.*—*Stem* with blunter angles than *C. rigida* or *C. stricta.*—*Stigmas* nearly sessile on the corolla, spreading and flexuose, with coarse pubescence, similar to the following, but larger and more loose. *Corolla* sessile. *Fruit* without ribs (in a young state at least), also sessile. *Beak* like that of *C. rigida*, except that it is not cloven at the notch." *Mr. W. Wilson.*

36. C. *rigida*, Gooden. *Rigid Carex.* Sheaths none; bracteas foliaceous, auricled at the base; fertile spikes subcylindrical, obtuse, loosely imbricated, the lower one pedunculated; fruit obovate, attenuated at the base, slightly stalked, with a very short entire point; leaves mostly recurved, broadly linear. *Br. Fl. ed.* 3. *p.* 403. *E. Bot. t.* 2047. *E. Fl. v.* iv. *p.* 116.

On Galtymore and Curan-Tuhol, the highest of Magillicuddy's Reeks, and other mountains in Kerry. *Fl.* June, July. ♃.—*Roots* creeping. Four to six inches high. "*Bracteas* often erect, not unfrequently recurved. *Stigmas* nearly or quite sessile, erect, not spreading, minutely papillose. *Corolla* with a short stalk. Nearly allied to *C. cæspitosa;* nor is it distinguishable by any other marks than the broad *leaves*, stalked *corolla*, and neatly formed erect *stigmas*, which if constant, may perhaps serve to keep it in the rank of a species."—*Mr. W. Wilson.* (*Hooker.*)

37. C. *stricta*, Gooden. *Straight-leaved Carex.* Sheaths none; bracteas with small auricles at the base, short, subfoliaceous; fertile spikes nearly sessile, cylindrical, elongated, closely imbricated, often acuminated, with barren flowers at the extremity; fruit ovate, somewhat acute, plane above on each side, on a very short stalk; stem acutely angular, straight; leaves long, straight, narrow-linear, their bases often reticulated. *Br. Fl. ed.* 3. *p.* 403. *E. Fl. v.* iv. *p.* 118. *E. Bot. t.* 914.

Marshes and sides of lakes, in various parts of the country. *Fl.* April, May. ♃.—Two feet or more high. *Leaves* rough, filamentous at their sheathing bases. *Spikes* long, erect. *Calyx-scales* lanceolate, dark brown. The *roots* are fibrous and tufted, and the plant is much taller than *C. cæspitosa.* "The *fruit* comes gradually to a point, and Mr. Wilson observes this point or mouth to be beset with very minute spinules. The *fertile spikes*, he finds, has very constantly eight rows of fruit." *Hooker.*

* * * * * *Barren and fertile flowers in separate spikes. Barren spikes two or more. Stigmas three,* (*except in* C. acuta.)

38. C. *acuta*, Linn. *Slender-spiked Carex.* Stigmas two; sheaths none; bracteas long, foliaceous; fertile spikes long, cylindrical, acuminate, slender, erect when in fruit; fruit oval, swelling, subacuminate, entire at the point; stem acutely angular, scabrous. *Br. Fl. ed.* 3. *p.* 404. *E. Fl. v.* iv. *p.* 119. *E. Bot. t.* 580.

Moist meadows and watery places in various parts of the country.

Fl. May. ♃.—Two to three feet high. *Leaves* broad, scarcely glaucous, rough.

39. C. *paludosa,* Gooden. *Lesser common Carex.* Sheaths none; bracteas very long, foliaceous; scales of the sterile spikes obtuse; fertile spikes cylindrical, obtuse; fruit oblongo-ovate, acute, bifid at the point, striated. *Br. Fl. ed.* 3. *p.* 404. *E. Fl. v.* iv. *p.* 120. *E. Bot. t.* 807.—*C. acuta, Curt.*

Boggy meadows, and by the sides of rivers and ditches. *Fl.* May. ♃.—Two feet or more high. *Leaves* very broad, keeled, rough.

40. C. *riparia,* Curt. *Great common Carex.* Sheaths none; bracteas very long, foliaceous; scales of the sterile spikes acuminated; fertile spikes scarcely pedunculated, broadly cylindrical, acute; fruit oblongo-ovate, striated, subacuminated, deeply bifid at the point. *Br. Fl. ed.* 3. *p.* 404. *E. Fl. v.* iv. *p.* 121. *E. Bot. t.* 579.—*C. acuta, Huds.*—*Lightf.*

Sides of ditches and rivers, common. *Fl.* May. ♃.—Longer than the last, with much broader *leaves* and *spikes ;* and distinguished by the acuminated *scales* of its *sterile spikes.*

41. C. *lævigata,* Sm. *Smooth-stalked beaked Carex.* Sheaths elongated, shorter than the flower-stalks; bracteas foliaceous; fertile spikes drooping, cylindrical; all the scales acuminated or mucronate; fruit ovate, triangular, striated, with rather a long acuminated beak, bifid at the point. *Br. Fl. ed.* 3. *p.* 404. *E. Fl. v.* iv. *p.* 122. *E. Bot. t.* 1387.

Marshes and boggy thickets. Near Ballylickey, Bantry; *Miss Hutchins.* Banks of the Laggan, near Belfast; *Mr. Templeton* and *Mr. Campbell. Fl.* June. ♃.—Two to three feet high. *Leaves* broad, but rather short. It has rarely more than one *sterile spike,* which is always triquetrous; but its similarity to the following species authorises its being placed in this division. If arranged in the section with " 1 *sterile spike,*" its station would be near *C. distans,* from which Mr. Wilson does not think it different. *Hooker.*

42. C. *vesicaria,* Linn. *Short-spiked Bladder Carex.* Sheaths none; bracteas foliaceous, long; fertile spikes cylindrical, slightly drooping; scales lanceolate; fruit broadly ovate, inflated, subulato-rostrate, bifid at the point. *Br. Fl. ed.* 3. *p.* 405. *E. Fl. v.* iv. *p.* 123. *E. Bot. t.* 779.

Bogs and marshes, frequent. *Fl.* May, June. ♃.—One and a half to two feet high. *Leaves* rather broad. *Stems* acute, angular. *Fruit* tawny, very large, shining, much inflated.

43. C. *ampullacea,* Gooden. *Slender beaked Bottle Carex.* Sheaths none; bracteas foliaceous, fertile spikes cylindrical, long, nearly erect, scales lanceolate; fruit crowded, subglobose, inflated, setaceo-rostrate, slightly bifid at the point. *Br. Fl. ed.* 3. *p.* 405. *E. Fl. v.* iv. *p.* 124. *E. Bot. t.* 780.

Bogs and marshes, frequent, all over the country. *Fl.* June. ♃.—Differs from the last by the smooth and nearly round *stem,* by the channelled glaucous *leaves,* and by the *fruit,* which is brownish and not half so large, with a narrower *beak* and different shape.

44. C. *hirta*, Linn. *Hairy Carex.* Hairy; sheaths elongated, nearly equal to the flower stalks; bracteas long, foliaceous; fertile spikes short, cylindrical, distant, the scales cuspidate; fruit hairy, ovate, with a long beak. *Br. Fl. ed.* 3. *p.* 405. *E. Fl. v.* iv. *p.* 125. *E. Bot. t.* 685.

Wet pastures and woods, frequent. *Fl.* May, June. ♃.—One to two feet high, more or less hairy in every part.

45. C. *filiformis*, Linn. *Slender-leaved Carex.* Glabrous; sheaths scarcely any; bracteas long, very narrow; fertile spikes shortly pedunculate, oblongo-cylindrical, their scales cuspidate; fruit ovate, shortly beaked, deeply bifid at the point, very pubescent. *Br. Fl. ed.* 3. *p.* 405. *E. Fl. v.* iv. *p.* 128. *E. Bot. t.* 904.

Boggy marshes, rare. Ballyphehane bog, and Lough Carra, County of Kerry; *Mr. J. Drummond. Fl.* May. ♃.—One to two feet high. *Leaves* slender, their margins involute, filamentous at their bases near the roots.

CELLULARES,

OR

FLOWERLESS PLANTS.

PLANTS without flowers and spiral vessels, composed chiefly of cellular tissue.—ACOTYLEDONES, *Juss.*—Cryptogamous or Ætheogamous Plants of *Authors.*

DIVISION I. FILICOIDEÆ, OR FERN-LIKE PLANTS.

Flowerless plants, with a stem having a vascular system and distinct leaves; their sporules having a proper integument, and contained in distinct axillary or dorsal thecæ.

Ord. 91. FILICES. *Juss.* Fern Family.

Fructification or organs of reproduction only of one kind. Capsules spiked or racemed, or generally collected into clusters of various shapes *(sori)*, mostly upon the back or margin of the frond, naked or covered with an involucre, with or without an elastic ring. Seeds or sporules minute.—*Perennial plants, most abundant in moist and mountainous countries within the tropics, gradually diminishing towards the poles. Fronds leafy, with a circinate vernation; in perfection during a great part of the year, especially in the summer months.*

Some species are used for food, others in medicine; but their virtues do not appear to be very powerful.

* *Capsules* 1-*celled, with an articulated, elastic, more or less complete ring, opening transversely and irregularly.* (POLYPODIACEÆ. *Kaulf.*)

1. GRAMMITIS. *Sw.* Grammitis.

Sori oblong, or linear, straight, scattered. *Involucre* none.—Name; γραμμη, a *line;* from the lines of fructifications.

1. G. *Ceterach*, Sw. *Scaly Grammitis.* Fronds pinnatifid, covered beneath with imbricated chaffy scales; segments ovate, obtuse; scales entire. *Br. Fl. ed.* 3. *p.* 447.—*Scolopendrium Ceterach, E. Bot.*. *t.* 1244. *E. Fl. v.* iv. *p.* 315.—*Asplenium Ceterach, Linn.*

Rocks and walls in limestone districts. On the ruins of the old Church near the Devil's Glen; abundant at the Marble-quarries near Kilkenny, and in the barony of Burren, County of Clare. Cave-hill; *Mr. Templeton.* Mr. W. Wilson finds evident traces of an involucre on the lower side of the sorus, viz. "a narrow membrane fringed with the chaffy scales, which cover the back of the frond." *Hook.*

2. POLYPODIUM. *Linn.* Polypody.

Sori roundish. *Involucre* none.—Named from πολυ, *many*, and πους, ποδος, a *foot*, from the numerous *roots*, or *segments* of the *fronds.*

1. P. *vulgare*, Linn. *Common Polypody.* Fronds deeply pinnatifid; the segments linear-lanceolate, obtuse, crenulate, approximate, upper ones gradually smaller. *Br. Fl. ed.* 3. *p.* 447. *E. Fl. v.* iv. *p.* 280. *E. Bot. t.* 1149.

Rocks, walls, trunks of trees, and banks, frequent. A beautiful variety, the δ. of Smith, I first found in the south isles of Arran in 1806, and it was found the same year in the Dargle by Miss Fitton, where it still continues to grow. In it the fronds are doubly pinnatifid, as well as variously toothed, and serrated, the segments either obtuse or taper-pointed, the whole *frond*, as Sir J. E. Smith remarks, elegantly imitating an ostrich feather. Our Irish plant is somewhat different from *P. cambricum, Linn.*, and produces copious fructifications.

2. P. *Phegopteris*, Linn. *Pale Mountain Polypody.* Fronds bipinnatifid, the two lowermost pinnæ standing forward, their segments linear-lanceolate, obtuse, entire, ciliated, the lowermost ones adnato-decurrent; veins hairy; sori marginal. *Br. Fl. ed.* 3. *p.* 447. *E. Fl. v.* iv. *p.* 282. *E. Bot. t.* 2224.

Shaded rocky places, in mountainous countries. At Powerscourt Waterfall, sparingly; Waterfall above Lough Eske, County of Donegal and other places in the northern counties.—Sir J. E. Smith observes that the name *Phegopteris*, or *Beech Fern*, is by no means suitable to this species, which does not grow in Beech-woods, but in stony mountainous places, or in clefts of rocks. The two lowest branches, or leaflets, being more or less bent downward, sometimes as it were pendulous, are peculiarly characteristic.

3. P. *Dryopteris*, Linn. *Tender three-branched Polypody*. Fronds ternate, bipinnate; divisions spreading and deflexed, the segments obtuse, subcrenated; sori marginal; root-stock filiform. *Br. Fl. ed.* 3. *p.* 448. *E. Fl. v.* iv. *p.* 282. *E. Bot. t.* 616.

Dry stony places in mountainous countries. On the Mountains of Mourne; Turk Mountain; Killarney; Mam-turk, Cunnamara, &c. *Frond* from 4—6 inches to a foot high, bright green, smooth, delicate and flaccid. *Stalk* slender, brittle, two or three times as tall as the leafy part, pale, very smooth, except a few scales at the bottom.

3. ASPIDIUM. *Sw.* Shield-fern.

Sori roundish, scattered. *Involucre* orbicular, fixed by the centre, or orbiculari-reniform and fixed at the sinus.—Name, *ασπις*, *ασπιδος*, a *shield*, which its *involucres* resemble, especially in the species of the first division.

* *Involucre orbicular, fixed by the centre, hence peltate.*
(Aspidium, *Br.*)

1. A. *Lonchitis*, Sw. *Rough alpine Shield-fern*. Fronds linear-lanceolate, pinnate; pinnæ lanceolato-falcate, acute, ciliato-serrate, the upper base acutely auricled, the lower one cuneate; superior pinnæ bearing the fructifications; stipes chaffy. *Br. Fl. ed.* 3. *p.* 448. *E. Fl. v.* iv. *p.* 284.—*Polypod. Lonch., Linn.*—*E. Bot. t.* 797.

Shady clefts of limestone rocks on Ben Bulben and other mountains in the County of Sligo in 1833, where it had previously been observed by Mr. E. Murphy. *Fronds* a span or more high, tufted, linear-lanceolate, firm, rigid and harsh, deep green. *Stalk* short, clothed below the leafy part with large, broad, taper-pointed scales; with smaller ones above.

2. A. *lobatum*, Sw. *Close-leaved prickly Shield-fern*. Fronds oblong-lanceolate, bipinnate; pinnules rigid, convex, ovate, sublunate, acuminate, aristate, oblique and cuneated at the base and decurrent, the margins faintly serrated, spinulose, with a distinct tooth at the base on the upper side, the one next the main rachis longer than the rest; stipes and rachis more or less chaffy; fructifications confined to the upper half of the fronds. *Br. Fl. ed.* 3. *p.* 449. *E. Fl. v.* iv. *p.* 290. *E. Bot. t.* 1563.

Moist woods, shady banks, and rocky places, generally in rather elevated situations; most plentiful in the northern counties. At the upper end of Colin Glen, where it was first pointed out to me by Mr.

Templeton. County of Derry; *Mr. D. Moore.* Hedge-banks in a lane on the north side of the Circular-road; *Mr. F. Whitla.* Distinguished from the following by its more convex pinnules, which are decurrent, and by the upper one next the rachis being much longer than the rest.

3. A. *aculeatum*, Sw. *Prickly Shield-fern.* Fronds broadly lanceolate, bipinnate; pinnules rigid, somewhat convex, slightly petioled, ovato-sublunate, acuminate or acute, aristate, obliquely truncate and auricled at the base on the upper side, the one next the main rachis somewhat larger than the rest, the margins distinctly serrated and spinulose; stipes and rachis chaffy. *Br. Fl. ed.* 3. *p.* 449. *E. Fl. v.* iv. *p.* 290. *E. Bot. t.* 1562, (bad.)

In the lower wooded part of Colin Glen, Belfast. Hedge-banks near Carrickfergus; *Mr. F. Whitla.* County of Derry; *Mr. D. Moore.* Nearly allied to the last, and perhaps only a variety of it. It may however be readily distinguished by the shortly petioled, not decurrent, generally longer, and more acute pinnules.

4. A. *angulare*, Sm. and Willd. *Angular-leaved Shield-fern.* Fronds broadly lanceolate, bipinnate; pinnules thin and membranaceous, plane, petioled, ovate, sublunate, obtuse, aristate, obliquely truncate at the base, with a large auricle on the upper side, the margins deeply serrated, spinulose, the lowermost ones often deeply pinnatifid, that next the main rachis scarcely larger than the rest, (excepting in var. β.); stipes and rachis very chaffy; fructifications copious. *Br. Fl. ed.* 3. *p.* 449. *E. Fl. v.* iv. *p.* 291. *E. Bot. Suppl. t.* 2776.—*A. aculeatum*, β. *Fl. Br. p.* 1122.—*A. lobatum, Willd.?*—*Hook. Br. Fl. ed.* 1. *p.* 443.—β. subtripinnate; pinnules, especially the lower ones, and the somewhat larger one next the main rachis, distinctly pinnate.

Woods and hedge-banks. Very common in the Counties of Wicklow, Down, Antrim, and Derry, and other parts of the country, where it had long been known as *A. aculeatum,* until Sir J. E. Smith described it under the above name.—Softer and more delicate in texture, as well as more shaggy than the last, and of a lighter green. The *leaflets* are smaller, more numerous, blunter and rounded at the extremity, tipped with a soft bristly point. In β. the pinnules are longer and more pointed, with about three pairs next the rachis distinctly pinnate. Another var. that I have been long acquainted with, of which also *Mr. G. S. Gough* collected specimens near Clonmel, has the pinnules narrow and lanceolate, with one terminal and several lateral, long, distant, rather rigid points.—Intermediate states between this species and *A. aculeatum* are found near Belfast by Mr. F. Whitla.

* * *Involucre orbiculari-reniform, fixed by the sinus.* (Nephrodium, *Rich. Br.*)

5. A. *Oreopteris*, Sw. *Heath Shield-fern.* Fronds pinnate; pinnæ lanceolate, pinnatifid, glabrous, resinoso-glandulose beneath, the segments lanceolate, obtuse, entire, lowermost ones

longer; sori marginal. *Br. Fl. ed.* 3. *p.* 450. *E. Fl. v.* iv. *p.* 286.—*Polypodium Oreopteris, Ehrh.*—*E. Bot. t.* 1019.

Mountainous countries, in heaths and dry pastures; plentiful in the County of Wicklow, and in the southern, western, and northern counties. Readily distinguished by its marginal sori, and, when rubbed between the hands, by its agreeable scent.

6. A. *Thelypteris*, Sw. *Marsh Shield-fern.* Fronds pinnate; pinnæ linear-lanceolate, pinnatifid, and as well as the rachis, slightly pubescent; the segments ovate, acute, entire; sori marginal, contiguous, at length confluent. *Br. Fl. ed.* 3. *p.* 450. *E. Fl. v.* iv. *p.* 285.—*Polypodium Thelypteris, Linn.* —*E. Bot. t.* 1018.

Marshy and boggy places. In the demesne of Mucruss, Killarney.—*Root* creeping.

7. A. *cristatum*, Sw. *Crested Shield-fern.* Fronds linear-lanceolate, pinnate; pinnæ cordate, attenuated, deeply pinnatifid, scarcely again pinnate; segments oblongo-ovate, obtuse, acutely and not doubly serrated. *Br. Fl. ed.* 3. *p.* 450. *E. Fl. v.* iv. *p.* 289. *E. Bot. t.* 2125. *Hook. in Fl. Lond. N. S. t.* 113. *Polypodium cristatum, Linn.*

Boggy heaths, rare. Found in the demesne of Sir Hugh Gough, at Rathronan near Clonmel; by *Mr. G. S. Gough* in 1835.

8. A. *Filix mas*, Sw. *Blunt Shield-fern.* Fronds bipinnate; pinnules oblong, obtuse, serrated; sori near the central nerve; stipes and rachis chaffy. *Br. Fl. ed.* 3. *p.* 450. *E. Bot. t.* 1458, and *t.* 1949. *(A. cristatum.)*—*Polypodium Filix mas, Linn.* —*β.* smaller; stipes less chaffy; involucres slightly tubercled; pinnules inciso-serrulate.

Woods, dry ditches, and shady banks, &c. frequent. A beautiful robust Fern; three to four feet high; its *fronds* growing in a circle. I have seen it in the County of Wicklow with a caudex eight inches above the ground. *β.* Found on Mangerton by Doctor Taylor, growing among *Luzula sylvatica*, where I have also observed it.

9. A. *spinulosum*, Willd. *Prickly-toothed Shield-fern.* Fronds subtripinnate; pinnules oblong, distinct, inciso-pinnatifid; segments mucronato-serrate; stipes chaffy. *Br. Fl. ed.* 3. *p.* 451. *A. dilatatum, Hook. Scot.* 2. *p.* 154.

α. fronds triangulari-ovate; lower primary pinnæ only once pinnate. *A. spinulosum, E. Bot. t.* 1460.

β. fronds triangulari-ovate; lower primary pinnæ bipinnate; pinnules often convex. *A. dilatatum, Willd.*—*E. Bot. t.* 1461. *E. Fl. v.* iv. *p.* 293.—*Polypodium dilatatum, Hoffm.*

Moist woods, and shady and rocky places in subalpine situations.—*β.* generally in moist woods. I perfectly agree with Doctor Hooker in uniting *A. spinulosum* and *A. dilatatum* of authors. Plants of the former brought from Spike Island, where I gathered the specimen figured in *E. Bot.* after two years cultivation having assumed all the characters of the latter.

10. A. *dumetorum*, Sm. *Thicket Shield-fern.* "Frond doubly pinnate; leaflets pinnatifid; lobes with terminal sharp prickly teeth; common stalk scaly; cover orbicular, flat with a deep notch." *Sm. E. Fl. v.* iv. *p.* 294. *Br. Fl. ed.* 3. *p.* 451.

Bushy and dry stony places. Near Powerscourt Waterfall and side of Djouce Mountain, abundant.—Much smaller than *A. dilatatum* of *Sm.* both in the wild and cultivated state, although perhaps only a variety of it.

4. CISTOPTERIS. *Bernhardi.* Bladder-fern. (Cystea, *Sm.*)

Sori roundish. *Involucre* inserted, by its broad cucullate base, at the under side of the *sorus*, opening by a lenghened free extremity, which points towards the apex of the frond. —Name compounded of κιστη, a *little box*, and πτερις, a *fern.*

1. C. *fragilis*, Bernh. *Brittle Bladder-fern.* Fronds bipinnate; pinnæ ovato-lanceolate; pinnules ovato-lanceolate, deeply pinnatifid; segments ovate or lanceolate, toothed; rachis winged. *Br. Fl. ed.* 3. *p.* 452.—*Cystea fragilis, E. Fl. v.* iv. *p.* 298.—*Aspidium fragile*, *Sw.*—*Hook. Scot.* 2. *p.* 155.—*Cyathea fragilis, E. Bot. t.* 1587.

Rocks and walls, in the mountainous parts of the southern, northern, and western counties.

5. ASPLENIUM. *Linn.* Spleen-wort.

Sori oblong or linear. *Involucres* of the same shape, superficial, arising from the lateral veins, and opening on one side longitudinally towards the central nerve or midrib.—Name, *a*, *not*, and σπλην, *the spleen*, the plant having been supposed useful in removing obstruction of the viscera.

1. A. *Trichomanes*, Linn. *Common Wall Spleen-wort.* Fronds pinnate; pinnæ roundish-oblong, obtuse, crenated, truncato-cuneate at the base; (stipes and rachis black.) *Br. Fl. ed.* 3. *p.* 453. *E. Fl. v.* iv. *p.* 305. *E. Bot. t.* 576.

Rocks and walls, common.

2. A. *viride*, Huds. *Green Spleen-wort.* Fronds pinnated; pinnæ roundish-ovate, obtusely serrated, cuneate at the base, (rachis green.) *Br. Fl. ed.* 3. *p.* 453. *E. Bot. t.* 2257. *E. Fl. v.* iv. *p.* 306.

Moist rocks on mountain cliffs. Turk Mountain, Killarney; Ben Bulben, County of Sligo, and on the Donegal Mountains near Lough Eske.

3. A. *marinum*, Linn. *Sea Spleen-wort.* Fronds pinnate;

pinnæ oblong, obtuse, inciso-serrate, the superior base rounded and subauriculated, the inferior one truncated. *Br. Fl. ed.* 3. *p.* 453. *E. Fl. v.* iv. *p.* 307. *E. Bot. t.* 392.

In clefts and caves of rocks near the sea. Howth, Killiney-hill, and abundant on the southern and western coasts.

4. A. *Ruta muraria,* Linn. *Wall-rue Spleen-wort.* Fronds bipinnate, especially below; pinnules obovato-cuneate, lobed or bluntly toothed; involucre jagged at the margin. *Br. Fl. ed.* 3. *p.* 453. *E. Fl. v.* iv. *p.* 309. *E. Bot. t.* 150.

Walls and fissures of rocks, frequent. Three to four inches high, somewhat glaucous. *Fruit* about the middle of the *pinnules,* afterwards covering the whole of their surface.

5. A. *Adiantum nigrum,* Linn. *Black-stalked Spleen-wort.* Fronds ovate or deltoid, tripinnate below; pinnules ovato-lanceolate, inciso-pinnatifid, toothed; principal rachis winged; sori at length confluent. *Br. Fl. ed.* 3. *p.* 453. *E. Fl. v.* iv. *p.* 310. *E. Bot. t.* 1950.

Banks and fissures of rocks, common. *Stipes* purplish-black. I found in 1805, on the limestone rocks at Mucruss, a beautiful and delicate variety, with fronds tripinnate throughout, or with pinnules deeply and finely laciniated; it was subsequently found by Miss Hutchins and Doctor Taylor; and Mr. W. Andrews lately gave me a specimen, collected by him in 1835, on a mountain called Cahir-Couree, six miles from Tralee.

6. A. *Filix fœmina,* Bernh. *Short-fruited Spleen-wort.* Fronds broadly lanceolate, bipinnate; pinnules linear, oblong, acute, often drooping, inciso-serrate; serratures bi-tridentate, acute; lower one at the upper margin large, auricled; sori oblong, at length arched at the base. *Br. Fl. ed.* 3. *p.* 453.—*Athyrium Filix fœmina, Roth.*—*Aspidium Filix fœmina, Sw.*—*E. Bot. t.* 1459, (not good.) *E. Fl. v.* iv. *p.* 295.—*Polypodium Filix fœmina, Linn.*—β. smaller. *Aspidium irriguum, E. Bot. t.* 2199. *E. Fl. v.* iv. *p.* 296.

Moist shady places, abundant. β. found by the sides of large stones in a marsh at Mucruss, along with *Aspid. Thelypteris.*

6. Scolopendrium. *Sm.* Hart's-tongue.

Sori linear, transverse, on lateral nerves. *Involucre* double, occupying both sides of the sorus, superficial, opening, as it were, by a longitudinal suture.—Named from the lines of fructification resembling the feet of a *Scolopendra.*

1. S. *vulgare,* Sym. *Common Hart's-tongue.* Fronds simple, oblongo-ligulate, acute, heart-shaped at the base; stipes scaly. *Br. Fl. ed.* 3. *p.* 454. *E. Fl. v.* iv. *p.* 314. *E. Bot. t.* 1150. —*S. officinarum, Sw.*— *Willd.*—*Asplenium Scolopendrium, Linn.*

Shady banks, moist rocks, the insides of wells, and in caverns where there is a current of damp air. *Fronds* numerous, tufted, erect, twelve to eighteen inches or more high, sometimes forked at the summit, or variously crisped or cut at the edges.

7. PTERIS. *Linn.* Brake.

Sori continuous, linear, marginal. *Involucres* formed of the inflexed margins of the frond, frequently dilated into a membrane, opening internally.—Name, πτερις, in Greek, a *Fern:* from πτερυξ, *a plume or feather.*

1. P. *aquilina*, Linn. *Common Brake.* Fronds tripartite; branches bipinnate; pinnules linear-lanceolate; superior undivided, inferior pinnatifid, the segments oblong, obtuse. *Br. Fl. ed.* 3. *p.* 454. *E. Fl. v.* iv. *p.* 318. *E. Bot. t.* 1679.

Woods, heaths, and stony or sandy soils, abundant.—Employed as litter for cattle. The ashes are useful in the manufacture of soap and glass. The main stalk, when cut across, exhibits in the pith a branched appearance, resembling a *spread-eagle,* whence the Latin name (*aquilina.*)

8. CRYPTOGRAMMA. *Br.* Rock-brake.

Sori linear or roundish, oblique, inserted upon the lateral nerves of the pinnule, at length confluent, and thus appearing marginal. *Common Involucre* formed by the revolute margins of the pinnules, which in a young state meet at the back: *partial* none.—Name; κρυπτος, *concealed,* and γραμμη, a *line;* from the concealed lines of the capsules.

1. C. *crispa*, Br. *Curled Rock-brake.* Sterile fronds bipinnate; pinnules bi-tripinnatifid; segments linear-oblong, often bidentate at the extremity; fertile fronds bipinnate, tripinnate below; pinnules linear-oblong, rather obtuse, entire, narrow at the base. *Br. Fl. ed.* 3. *p.* 454.—*Pteris crispa, Linn.*—*E. Bot. t.* 1160. *E. Fl. v.* iv. *p.* 319.

Among loose stones in mountainous countries in the north. Abundant on the Mourne Mountains.

9. BLECHNUM. *Linn.* Hard-fern.

Sori linear, longitudinal, contiguous, parallel, one on each side of the rib. *Involucre* superficial, continuous, opening interiorly.—Name, βληκνον, another Greek name for a *fern.*

1. B. *boreale*, Sw. *Northern Hard-fern.* Sterile fronds pectinato-pinnatifid, the segments lanceolate, rather obtuse; fertile fronds pinnate; pinnæ linear, acuminate. *Br. Fl. ed.* 3. *p.* 455. *E. Fl. v.* iv. *p.* 316. *E. Bot. t.* 1159.

Woods and heaths abundant, especially in a poor light soil.

10. ADIANTUM. *Linn.* Maidenhair.

Sori oblong or roundish. *Involucres* membranaceous, arising from distinct portions of the margins of the frond, turned in, opening interiorly.—Name, *αδιαντος*—that which is of a *dry nature.*

1. A. *Capillus Veneris*, Linn. *True Maidenhair.* Frond bipinnate; pinnules thin, membranaceous, obovato-cuneate, inciso-sublobate; segments of the fertile pinnules terminated by a linear-oblong sorus, sterile ones serrated. *Br. Fl. ed. 3. p.* 455. *E. Fl. v.* iv. *p.* 321. *E. Bot. t.* 320.

In the fissures of limestone rocks, south isles of Arran, abundant. It has also been found sparingly near Roundstone, Cunnamara, by *Mr. J. M'Calla*, and on Cahir Couree Mountain, near Tralee, by *Mr. Wm. Andrews.*—A most delicate and beautiful *Fern*, varying in height from three inches to one foot and a half, according to the depths of the fissures in which it grows. In our Gardens it requires the protection of the green-house.

11. TRICHOMANES. *Linn.* Bristle-fern.

Sori marginal. *Capsules* upon an elongated receptacle, within a cylindrical, or suburceolate, monophyllous *involucre*, which is of the same texture as the frond, opening above.—Name; ϑριξ, *τριχος*, a *hair*, and *μανια*, *excess*, from the numerous hair-like, exserted *receptacles* of the *sori.*

1. T. *brevisetum*, Br. *Short-styled Bristle-fern.* Fronds thrice pinnatifid, glabrous, segments linear, entire or bifid, obtuse; involucres solitary in the axils of the upper segments, margined, cylindrical, the mouth scarcely 2-lipped, shorter than the receptacle. *Br. Fl. ed.* 3. *p.* 455. *E. Fl. v.* iv. *p.* 325.—*T. Europæum, Sm. in Rees' Cycl.*—*T. alatum, Hook. in Fl. Lond. N. S. t.* 53, (not *Willd.)*—*T. pyxidiferum, Huds.*—*Hymenophyllum alatum, E. Bot. t.* 1417.—*Hymenophyllum Tunbridgense, β. Sm. Fl. Brit.*

Wet rocks and shady banks in warm sheltered situations, rare.—I was fortunate in finding this beautiful Fern, with fructifications and in considerable quantity, near Turk Waterfall, Killarney, in Oct. 1805. It has since been found sparingly in one or two other places in that neighbourhood. A single plant was found about the same time at Powerscourt Waterfall, by Miss Fitton and Doctor Whitley Stokes, where I have since seen it. A few plants were also found soon after, by Mr. Nuttall, in Hermitage Glen, County of Wicklow, where I have seen a single plant in a weak state. I have specimens of this Fern from Madeira, collected by my late friend Doctor James Suter, along with *T. canariensis* and several other beautiful species. I have succeeded in cultivating it to perfection, by placing the pots in which it is planted in the Green-house under a hand-glass.

12. HYMENOPHYLLUM. *Sm.* Filmy-fern.

Sori marginal. *Capsules* upon a narrow receptacle, within a two-valved *involucre*, which is of the same texture as the frond, opening above.—Named from ὑμη, a *membrane*, and φυλλον, *a leaf;* an admirably characteristic appellation.

1. H. *Tunbridgense*, Sm. *Tunbridge Filmy-fern.* Fronds tender, pinnate; pinnæ distichous, vertical, pinnatifid, the segments linear, undivided or bifid, and as well as the axillary, solitary, suborbicular compressed involucre, spinuloso-serrate; rachis strongly winged. *Br. Fl. ed.* 3. *p.* 456. *E. Bot. t.* 162. *Hook. in Fl. Lond. N. S. t.* 71. *E. Fl. v.* iv. *p.* 327.

Moist rocks in mountainous situations. Powerscourt Waterfall, Glencree and other places in the County of Wicklow, and many other parts of the country. Habit tender and delicate, spreading widely over the rocks on which it grows. *Pinnæ* pointing in two opposite directions, flat and vertical, on the same plane with the winged *rachis*. *Involucres* nearly orbicular, slightly swollen at the base, where the cluster of *capsules* is lodged, the rest compressed, especially at the margin of the valves. When dry there is a kind of elasticity in the plant.

2. H. *Wilsoni*, Hook. *Scottish Filmy-fern.* Fronds rigid, pinnate; pinnæ recurved, subunilateral, pinnatifid, the segments linear, undivided or bifid, spinuloso-serrate; involucres axillary, solitary, ovate, inflated, entire; rachis only slightly margined towards the extremity. *Br. Fl. ed.* 3. *p.* 456.—*Wilson in E. Bot. Suppl. t.* 2686.

On wet shaded rocks, generally in elevated situations in many parts of the country. On the Kerry mountains, Cunnamara, and Glencree, County of Wicklow. On Sugar-loaf Mountain; *Mr. Nuttall.* First distinguished as a species distinct from *H. Tunbridgense* by Mr. W. Wilson, who found it near Killarney. "More rigid, and with larger reticulations than the last; quite distinct in its mode of growth, for all the *pinnæ* are strongly curved backwards, in a direction contrary to that of the fructification: the *involucre* is totally different, larger, browner, of a more rigid texture, truly ovate, each valve remarkably convex for its whole length, the edges only of the valves being applied to each other, and they are quite entire." *Hook.*

* * *Capsules spiked or clustered, regularly 2-valved, without an elastic jointed ring.* (OSMUNDACEÆ *and* OPHIOGLOSSEÆ, *Br.*)

13. OSMUNDA. *Linn.* Osmund-royal, or Flowering-fern.

Capsules subglobose, pedicellate, clustered, striated, half two-valved. *Involucre* none.—Name, probably given, as Sir J. E. Smith suggests, in honour of some person. *Osmund*, in Saxon, is said to mean *domestic peace.*

1. O. *regalis*, Linn. *Common Osmund-royal.* Fronds bi-

pinnate; pinnules oblong, nearly entire, the lower base somewhat auricled, the inferior ones opposite; fertile panicle bipinnate, occupying the extremity of the frond. *Br. Fl. ed.* 3. *p.* 456. *E. Fl. v.* iv. *p.* 327. *E. Bot. t.* 209. *Hook. in Fl. Lond. N. S. t.* 150.

Boggy places, sides of woods, watery meadows near the sides of lakes in many places. Very abundant near Killarney; near the lake at the Seven Churches; upper end of Kelly's Glen in meadows. It is also found in various places in the County of Down, and at Newtownbarry, County of Waterford. The noblest and most striking of our native ferns.

14. Botrychium. *Sw.* Moon-wort.

Capsules subglobose, sessile, clustered at the margin and on one side of a pinnated rachis, 1-celled, 2-valved, compressed, opening transversely. *Involucre* none.—Name; βοτρυς, a *bunch of grapes;* from the appearance of the branched clusters of capsules.

1. B. *Lunaria,* Sw. *Common Moon-wort.* Frond pinnated, solitary; pinnæ lunate or subflabelliform, crenate. *Br. Fl. ed.* 3. *p.* 456. *Hook. in Fl. Lond. N. S. t.* 150. *E. Fl. v.* iv. *p.* 328. —*Osmunda Lun., Linn.—E. Bot. t.* 318.

Dry mountain pastures. I have specimens from Mr. D. Moore, collected on Magilligan, with three distinct stalks of fructifications.

15. Ophioglossum. *Linn.* Adder's-tongue.

Capsules 1-celled, 2-valved, opening transversely, connate, so as to form a compact 2-ranked spike. *Involucre* none.—Name, οφις, οφιος, a *serpent,* and γλωσσα, a *tongue,* which the spike of fructification somewhat resembles.

1. O. *vulgatum,* Linn. *Common Adder's-tongue.* Spike cauline; frond ovate, obtuse. *Br. Fl. ed.* 3. *p.* 457. *E. Bot. t.* 108. *Hook. in Fl. Lond. N. S. t.* 78. *E. Fl. v.* iv. *p.* 329.

Moist pastures and boggy mountains, not unfrequent.

Ord. 92. LYCOPODIACEÆ. *Sw.* Wolf's-foot Family.

Fructification sessile in the axils of the leaves or branches. Capsules without a ring, some 2-valved, filled with a powder; others 2—3-valved, containing larger globular bodies.—*Leafy plants common to very different climates, and with very varied aspects.*

1. Lycopodium. *Linn.* Club-moss.

Capsules 1-celled; some 2-valved, including a fine powdery substance, others 3-valved, containing a few large *grains* or *seeds*.—Named from λυκος, a *wolf*, and πους, ποδος, a *foot*, which the branches of some species are supposed to resemble.

1. L. *clavatum*, Linn. *Common Club-moss.* Spikes in pairs, cylindrical, stalked, their scales ovate, acuminate, eroso-dentate; stem creeping; branches ascending; leaves scattered, incurved and hair pointed. *Br. Fl. ed.* 3. *p.* 457. *E. Fl. v.* iv. *p.* 331. *E. Bot. t.* 224.

Heathy pastures in mountainous countries. Plentiful on the Dublin Mountains, &c.—The *seeds* being inflammable, are used to produce artificial lightning on the stage. *Stems* many feet long.

2. L. *selaginoides*, Linn. *Lesser alpine Club-moss.* Spikes terminal, solitary, sessile; stem creeping; branches few, ascending, simple; leaves scattered, lanceolate, subpatent, ciliato-denticulate. *Br. Fl. ed.* 3. *p.* 457. *E. Fl. v.* iv. *p.* 332. *E. Bot. t.* 1148.

Boggy places by the sides of mountains in various parts of the country, and sandy low grounds at Portmarnock. Two to three inches high. *Stems* much branched, spreading, weak and slender below; the branches erect, leafy, cylindrical, obtuse; those which bear the fructification longer and stouter than the others. The smallest of our species.

3. L. *alpinum*, Linn. *Savin-leaved Club-moss.* Spikes terminal, solitary, sessile, short, cylindrical; stem prostrate; branches dichotomous and fascicled; leaves in four rows, oblong, convex, acute, appressed. *Br. Fl. ed.* 3. *p.* 457. *E. Fl. v.* iv. *p.* 335. *E. Bot. t.* 234.

On the more elevated mountains, more abundant in the north. Donegal, Derry, and Mourne Mountains, Mangerton and other mountains in Kerry.—"It is used in many countries to dye woollen cloth of a yellow colour." *Hook.*

4. L. *Selago*, Linn. *Fir Club-moss.* Capsules in the axils of the common leaves (not spiked); stem dichotomously branched, erect, fastigiate; leaves in about eight rows, linear-lanceolate, acuminate, entire, imbricated, rigid. *Br. Fl. ed.* 3. *p.* 457. *E. Fl. v.* iv. *p.* 333. *E. Bot. t.* 233.

Heathy and stony soils, most abundant all over the country. It is known in Kerry as the (Virgin Mary's Furze.)—"Used in the Highlands, instead of alum, to fix colours in dyeing, and as an emetic and cathartic, but it operates violently. The Swedes use it to destroy lice on swine and other animals." *Hook.*

ORD. 93. MARSILEACEÆ. *Br.* Pepper-wort Family.

Fructification of two kinds, enclosed in a one- or more-celled involucre near the root.—*Aquatic plants of various regions.*

1. ISOETES. *Linn.* Quill-wort.

Involucres formed of the swollen base of the leaves, 1-celled. *Seeds* angular, inserted upon many filiform receptacles.—Named from ισος, *equal* or *alike*, and ετος, the *year ;* or *evergreen.*

1. I. *lacustris*, Linn. *Europæan Quill-wort.* Leaves subulate, bluntly 4-angular, of four longitudinal internally jointed tubes. *Br. Fl. ed.* 3. *p.* 458. *Hook. in Fl. Lond. N. S. t.* 131. *E. Fl. v.* iv. *p.* 343.

Bottoms of lakes. Upper Lough Bray, and in several lakes in Cunnamara. A very singular aquatic ; its *fructification* being entirely concealed at the base of the cellular, subulate *leaves.* " Mr. W. Wilson considers the fructifications to be of two kinds :—in one the contained granules are oval, pellucid, and with sutures : in the other they are sphærical, and splitting at the sutures into four portions (one portion hemisphærical, the other three triangular) and they are rough on the surface." *(Hook.)*

2. PILULARIA. *Linn.* Pill-wort.

Involucres solitary, nearly sessile, globose, coriaceous, 4-celled: each *cell* containing two different kinds of bodies; *(anthers?* and *pistils?)*—Name; *pilula, a little pill,* which its fructifications resemble.

1. P. *globulifera*, Linn. *Creeping Pill-wort. Br. Fl. ed.* 3. *p.* 458. *E. Bot. t.* 521. *Hook. in Fl. Lond. N. S. t.* 83. *E. Fl. v.* iv. *p.* 342.

Margins of lakes and pools, and in places that are partially overflowed. Abundant in marshy ground about two miles from the mouth of the Blackwater, near Lough Neagh ; *Mr. J. Campbell.* In a ditch by the river Bann, a little below Jackson's Hall, Coleraine ; *Mr. David Moore.*—*Stems* creeping, long, and entangled. *Leaves* setaceous, erect, two or three from one point, four to five inches long. *Involucres* at the base of the *leaves*, about the size of small peas, brown, downy on the outside.

ORD. 94. EQUISETACEÆ. *Rich.* Horse-tail Family.

Fructification terminal, in spikes or catkins, consisting of peltate, polygonous scales, on the under side of which are from 4—7 involucres, which open longitudinally, and contain numerous globose bodies, (capsule?) enfolded by four elastic filaments, clavate at their extremities, (which some take for stamens.)—*Widely dispersed plants, growing in dry or in wet places, sometimes aquatic. Stems rigid, leafless, jointed, striated, the articulations sheathed at the base; the cuticle abounding in silex; branches, if any, mostly whorled, and as many will be found as there are striæ upon the stem and teeth to the sheath, if the teeth do not continue more or less combined.*

1. EQUISETUM. *Linn.* Horse-tail.

Character of the Genus the same as that of the Order.—Named from *Equus*, a *horse*, and *seta*, a *hair*, or *bristle;* meaning *horse-tail.*

* *Fertile stems simple, succulent, brownish, appearing before the sterile ones and soon dying away, when the latter alone remains through the summer, with whorled branches.*

1. E. *fluviatile*, Linn. *Great Water Horse-tail.* Sterile stems with very numerous (about thirty) striæ, and nearly erect simple branches; stem cylindrical, smoothish; sheaths with close small subulate teeth; fertile stems (short) without branches, clothed with ample loose sheaths, having many subulate teeth. *Br. Fl. ed.* 3. *p.* 458. *E. Bot. t.* 2022. *E. Fl. v.* iv. *p.* 337.

Muddy lakes, sides of rivers and pools, frequent. *Fl.* April.—The largest of all our species, its sterile *stems* or *fronds* being three to four feet high.

2. E. *Drummondii*, Hook. *Blunt topped Horse-tail.* Frond very obtuse at the extremity; sterile stem, especially upwards, scabrous, with prominent points and about twenty striæ; teeth of the sheath appressed; branches simple, patent; fertile stem without branches, its sheaths approximate, appressed, with subulate teeth. *Br. Fl. ed.* 3. *p.* 459. *Hook. in E. Bot. Suppl. t.* 2777.

First found by Mr. T. Drummond at Wolf-hill, the seat of William Thompson, Esq. near Belfast, where I have collected specimens. *Fl.* April.—"Allied to the following, but its colour is greener and less glaucous, its *stems* rougher, with closely set, raised points, its angles and *branches* much more numerous, and the whole *barren-frond* is singularly blunt (in its outline) at the extremity, by which it may be at once distinguished from *E. arvense*. The *sheaths*, though paler at the base, have blacker and more prominent ribs upwards, and they are so close as to imbricate each other; their *teeth* also are more numerous when they separate into the proper number." *(Hook.)*

3. E. *arvense*, Linn. *Corn Horse-tail.* Frond attenuated

upwards; sterile stem slightly scabrous, with twelve to fourteen furrows; teeth of the sheath lanceolato-subulate; branches simple, erecto-patent; fertile stem without branches, its sheaths remote, loose. *Br. Fl. ed.* 3. *p.* 459. *E. Fl. v.* iv. *p.* 337. *E. Bot. t.* 2020.

Corn-fields and road sides, frequent. *Fl.* April; afterwards the *sterile stems* appear.

* * *Fertile stems at length throwing out whorled branches, or bearing the fructifications at the same time with the whorled branches.*

4. E. *sylvaticum*, Linn. *Branched Wood Horse-tail.* Sterile and fertile stems with about twelve furrows; branches compound, whorled, deflexed; sheaths lax, with about six or twelve long membranaceous, obtuse teeth. *Br. Fl. ed.* 3. *p.* 459. *E. Fl. v.* iv. *p.* 336. *E. Bot. t.* 1874.

Moist woods and hedge-banks, chiefly in mountainous situations. Near Roundwood and other places in the County of Wicklow; abundant in the north. *Fl.* April, May.—A very elegant species, twelve or eighteen inches high. *Sterile plants* pyramidal in their *catkin; fertile ones* abrupt at the top, especially after the fructification has passed away.

5. E. *limosum*, Linn. *Smooth naked Horse-tail.* Stem smooth, striated; striæ about 16—18; teeth of the sheaths short, rigid, distinct; branches nearly erect, simple, often abortive; catkin terminal upon the stem. *Br. Fl. ed.* 3. *p.* 459. *E. Fl. v.* iv. *p.* 339. *E. Bot. t.* 929.

Watery places and ditches, frequent. *Fl.* June, July.—Next in size to *E. fluviatile*: agreeing, too, somewhat in habit; but with fewer *angles* and *teeth*, and fewer *branches* in a whorl, and these latter often short and imperfect, or wanting; and differing, by the *catkins* being upon stems that are similar to the barren ones.

6. E. *palustre*, Linn. *Marsh Horse-tail.* Stem furrowed, roughish, with seven or eight angles; branches simple, gradually shorter upwards (sometimes abortive), catkin terminal on the stem. *Br. Fl. ed.* 3. *p.* 459. *E. Fl. v.* iv. *p.* 339. *E. Bot. t.* 2021.

β. *E. palustre minus polystachion*, *Bauh. Prodr.* 24. *Dill. in Raii Syn.* 131. *t.* 5. *f.* 3.

Boggy soils, frequent. β. (γ. *Smith*). *Spikes* terminating the upper branches as well as the stem. *Fl.* June, July.

* * * *Stems simple, or irregularly branched; fructifications terminal.*

7. E. *hyemale*, Linn. *Rough Horse-tail.* Stem throwing up simple branches only from the base, scabrous, furrowed, rough; sheaths with about fourteen very small, obtuse, often deci-

duous teeth (black at the extremity); catkin terminal. *Br. Fl. ed.* 3. *p.* 460. *E. Bot. t.* 915. *E. Fl. v.* iv. *p.* 339.

Moist woods. Powerscourt Demesne. Woodlands and other places in the County of Dublin, and many other parts of the country. *Fl.* July, Aug.—Most of the *Horse-tails* are more or less rough to the touch, and their cuticle abounds in *silex*, or flinty earth; so that they are admirably suited for the polishing of hard woods, ivory, brass, &c. This species, *E. hyemale*, is by far the best kind for such purposes, and is imported from Holland in considerable quantity, under the name of *Dutch Rushes*. In Northumberland, Lightfoot tells us that the dairy-maids employ it to scour and clean their milk-pails.

8. E. *variegatum*, Schleich. *Variegated Rough Horse-tail.* Stems filiform, rough, branched only at the base, with 4—8 furrows; sheaths with white, membranaceous, lanceolate teeth, (black at their base); catkin terminal. *Br. Fl. ed.* 3. *p.* 460. *E. Fl. v.* iv. *p.* 340. *E. Bot. t.* 1987.

Sandy sea-shores, &c. Portmarnock-sands, where it was first observed by Doctor Taylor. Moist banks near a waterfall at the upper end of Colin Glen, Belfast, where I found it in company with Mr. F. Whitla, in August, 1833. Ballyharrigan Glen, near Dungiven; *Mr. D. Moore. Fl.* July, Aug.—The smallest of our species; when growing in dry shady places decumbent or ascending, 6—8 inches long; in moist ground, erecto-flexuose, or declinate, often two feet, as in my specimens from Colin Glen; many of which have three or four alternate branches inserted a little below the upper joints.—Doctor Hooker states that Mr. Wilson finds it at Mucruss, Killarney, of an equally large size, growing in water.

ORD. 95. CHARACEÆ. *Rich.* Chara Family.

Organs of fructification of two kinds, on the same or on different plants; in the latter case approximate or remote from each other, always produced on, or at the base of, the lesser ramuli or bracteas:—1. Globules of a reddish or orange colour (stamens of many authors), in maturity formed of triangular scales, each of which, in *Chara vulgaris*, "has a vacant portion in its centre, but the margin (which has a fluted appearance under a small magnifier,) consists of a number of parallel, linear-oblong, hyaline, hollow tubes, placed at small intervals from each other, those forming the angles of the scale being branched. Within these tubes are a profusion of globular, minute, orange bodies, (exactly similar to the sporules of other cryptogamic plants,) arranged in no order, and escaping on the least injury of the tubes. It is these little bodies which give the orange colour to the globule." (*Grev.*) The globule is filled with a mucilage and extremely delicate convoluted filaments, arising from minute campanulate bodies and often articulated.—2. Nucules, which are ovate, consisting of a hard, spirally twisted, crustaceous integument, often crowned with five projecting points, filled with minute granules, which, however, perhaps, in maturity constitute one body.—*Aquatic plants, always submerged, formed of simple or compound, membranaceous, sometimes brittle tubes, smooth or spirally striated, often invested with a calcareous covering, jointed at the insertion of the branches, which are dichotomous and whorled.*

The genus Chara has been variously placed by different Botanists. The organs of fructification being of two kinds, sometimes near each other, at other times apart, the greater number of Botanists of the Linnæan School have placed it either in MONANDRIA MONOGYNIA, or in MONŒCIA MONANDRIA.—Linnæus himself at first placed it in CRYPTOGAMIA, and such seems to be the prevalent opinion with the followers of the Natural System. Richard first proposed that it should constitute a separate order, widely removed as it is from every other; so much so, that it would be difficult to say to which it is most allied. Dubis and De Candolle have placed it (as I have done) next to the Equisetaceæ, but with a note of doubt as to the propriety of doing so.—For a more detailed description of this genus, see *Hooker's Br. Fl. v.* ii. *p.* 242, where it is placed next to the Algæ.

1. CHARA. *Vaill.* Chara.

(CHARACTER *the same as that of the Order.*) Name; its origin unknown.

* *More or less pellucid and flexible, not striated.* (Nitella. *Ag.*)

1. C. *translucens*, Pers. *Translucent Chara.* Elongated, smooth, flaccid, glossy and pellucid; branches of the whorls elongated, patent, obtuse, simple, with a short point; nucules and globules upon the smaller ramuli scarcely bracteated. *Br. Fl. v.* ii. *p.* 245.—*Pers. Syn. Pl. v.* 2. *p.* 531. *E. Bot. t.* 1703. *E. Fl. v.* i. *p.* 8.—*Nitella translucens, Ag. Syst. Alg. p.* 124.

Old Aquarium of Cork Botanic Garden; *Mr. W. H. Harvey.* In one of the small lakes above Kilrea, County of Derry; *Mr. D. Moore.* Lake near Slieve Croob; *Mr. Templeton.*—This is the largest, the brightest coloured, and most glossy of any of our species. Vaillant and Sir J. E. Smith describe the branches as jointed; but this appearance Doctor Hooker thinks is wholly owing to a fold in the membrane of the tube, which is sometimes transverse and sometimes oblique.

2. C. *flexilis*, Linn. *Flaccid Chara.* Smooth, flaccid, somewhat glossy and pellucid, much and frequently dichotomous; branches of the whorls simple or divided, obtuse; nucules few, scarcely bracteated. *Br. Fl. v.* 2. *p.* 245.—*E. Bot. t.* 1070. *E. Fl. v.* i. *p.* 7.—*Nitella flexilis,* and *opaca, Ag. Lyst. Alg. p.* 124.

Ditches, lakes, and still waters, frequent. I have a specimen from Mr. W. H. Harvey of a variety found by him in the lower lake of Killarney, with the branches of the whorls more elongated than usual, and the fertile ramuli nestled among them, as described by Dr. Hooker.

3. C. *nidifica*, Œd. *Clustered Chara.* Smooth, flaccid, somewhat glossy and pellucid, simple below; primary whorled branches simple, elongated, fertile ones very numerous, crowded and proliferous; nucules separated from the globules on the same plant *(Borrer)*, bracteated. *Hook. Br. Fl. v.* ii. *p.* 245.—*Fl. Dan. t.* 761. *E. Bot. t.* 1703. *E. Fl. v.* i. *p.* 8.—*Nitella nidifica, Ag. Syst. Alg. p.* 125.

Lough Neagh; *Mr. Templeton.*

* * *Opaque and very brittle, striated, often spirally.* (Chara *Ag.*)

4. C. *vulgaris*, Linn. *Common Chara.* Smooth, opaque, brittle (but not incrusted), very obscurely striated; branches of the whorls slender, subulate; fertile ones with many short ramuli or bracteæ, three or four of which are much longer than the globule and nucule that they accompany. *Br. Fl. v.* ii. *p.* 246.—*E. Bot. t.* 336. *E. Fl. v.* i. *p.* 6. *Ag. Syst. Alg. p.* 128.

Ditches and slow streams, frequent.

5. C. *Hedwigii*, Ag. *Hedwigian Chara.* Elongated, smooth, opaque, brittle, (sometimes partially incrusted,) obscurely striated; branches of the whorls subulate, the sterile ones with many short ramuli or bracteæ, three or four of which are shorter than the nucule and globule that they accompany. *Br. Fl. v.* ii. *p.* 246.—*Ag. Syst. Alg. p.* 129.

In a fresh-water pool near Portrush; *Mr. D. Moore.*—Larger than the preceding, with more numerous fertile branches and shorter bracteæ. The branches are jointed in both at the setting on of the ramuli or bracteæ, which, being numerous, the joints are consequently numerous.

6. C. *aspera*, Willd. *Rough Chara.* Slender, opaque, brittle, obscurely striated, every where beset with patent, scattered spinules; branches of the whorls subulate, the fertile ones with many short ramuli or bracteæ, of which three or four accompany the nucule or globule (on different plants), uncertain in length. *Br. Fl. v.* ii. *p.* 246.—*Ag. Syst. Alg. p.* 130. *Grev. Scot. Cr. Fl. t.* 339.

By the side of the Bann river, below Coleraine; *Mr. D. Moore.*

7. C. *hispida*, Linn. *Hispid Chara.* Opaque, brittle, striated, covered more or less thickly by a calcareous crust; branches of the whorls subulate; fertile ones with many short ramuli or bracteæ, of which three or four are longer than the nucule and globule that they accompany.—*α. major;* larger; stems spinulose. *Br. Fl. v.* ii. *p.* 246.—*C. hispida, Linn.*—

E. Bot. t. 463. *E. Fl. v.* i. *p.* 7. *Ag. Syst. Alg. p.* 128.—*β. gracilis;* smaller; spinules obsolete. C. *hispida, β. Ag. Syst. Alg. p.* 128. *E. Fl. v.* i. *p.* 7.

Ditches and bog-pits, frequent. β. Pond at Ballyrenna, near Magilligan; *Mr. D. Moore.* In a ditch inside of the Murrough of Wicklow many varieties of this plant may be gathered, some so hispid that they resemble *C. crinita,* and others as naked as *C. vulgaris; Mr. W. H. Harvey.*

FLORA HIBERNICA.

PART SECOND,

COMPRISING

THE MUSCI, HEPATICÆ,

AND

LICHENES.

ORDER II.

MUSCI. *Linn.* Mosses.

PLANTS small, evergreen, or rapidly reviving by moisture, simply attached by their roots, nourished by their leaves, which are membranous, simple, sessile; renovating above, decaying beneath and depositing soil; growing on earth, trees, stones, and even in fresh water; preferring temperate climates, exposure to the north and moist situations. The mosses are furnished with roundish stalked vesicles intermixed with jointed filaments in the axils of the leaves or in star-like clusters, called the *male organs* by Hedwig; but the fecundation has never been observed. They are supplied besides with *capsules* containing grains which Hedwig, and more lately Mr. James Drummond, have proved to be seeds by their successful experiments of germination. The capsules in a young state numerous, clustered, cylindrical, have with good reason been denominated *pistils;* usually only one of the cluster swells into a *capsule.* The swelling of the capsule causes its covering or *calyptra* to separate at its base; it retains its situation, however, until the maturity of the seeds, which escape sometimes by the rupture of the capsule, but more commonly by the separation of the suture by which the *lid* or superior portion of the young capsule was fixed. The capsule is furnished with an interior membrane to the inner surface of which the *seeds* are attached. The appearance of young fruit usually overtakes the maturity of the old. The lid falling, displays the mouth of the capsule either naked, or with a single or double *peristome* or fringe, dividing into 4, 8, 16, 32 or 64 teeth.

TABLE OF THE GENERA.

I. *Lid adnate, not separating.*

1. **ANDREÆA.** *Capsule* 4-valved.

2. **PHASCUM.** *Capsule* entire.

II. *Lid deciduous at the maturity of the seeds.*

1. *Mouth of the capsule naked.*

3. **SPHAGNUM.** *Capsule* sessile, its receptacle pedunculated.

In all the remaining Genera the capsule is supported on a *seta* or stalk, which, however, is sometimes minute.

4. **ŒDIPODIUM.** *Seta* fleshy, pellucid. *Calyptra* campanulate, splitting on one side.

5. **GYMNOSTOMUM.** *Seta* rigid, opaque. *Calyptra* dimidiate. *Fruit* terminal.

6. **HEDWIGIA.** *Seta* rigid, opaque. *Calyptra* dimidiate. *Fruit* lateral.

7. **ANICTANGIUM.** *Seta* rigid, opaque. *Calyptra* campanulate. *Fruit* terminal.

2. *Mouth of the Capsule with a Peristome.*

a.

Seta terminal; (except in a few species of Dicranum,)

†

Peristome single.

(Entosthodon and some Orthotricha occasionally or altogether want the inner Peristome).

8. **DIPHYSCIUM.** *Peristome* a conical, truncated, plaited membrane. *Capsule* oblique.

9. **TETRAPHIS.** *Peristome* of 4 triangular teeth.

10. **SPLACHNUM.** *Peristome* of 8 or 16 pairs of teeth. *Capsule* with an *apophysis.*

11. **ENCALYPTA.** PERISTOME of 16 teeth. *Calyptra* campanulate, smooth, enclosing the mature capsule.

12. **WEISSIA.** *Peristome* of 16 equidistant teeth. *Calyptra* dimidiate.

13. **GRIMMIA.** *Peristome* of 16 broad equidistant teeth, entire or perforated. *Calyptra* campanulate.

14. **DIDYMODON.** *Peristome* of 16 or 32 teeth, in pairs. *Calyptra* dimidiate.

15. TRICHOSTOMUM. *Peristome* of 16 or 32 teeth, in pairs. *Calyptra* campanulate, shorter than the mature capsule.

16. GLYPHOMITRION. *Peristome* of 16 teeth, in pairs. *Calyptra* campanulate, longer than the mature capsule. *Capsule* destitute of an apophysis.

17. DICRANUM. *Peristome* of 16 equidistant bifid teeth. *Calyptra* dimidiate.

18. TORTULA. *Peristome* of 32 teeth, spirally twisted above, united more or less below into a tubiform membrane.

19. ZYGOTRICHIA. *Peristome* of 32 teeth, in pairs, spirally twisted above, united below by transverse processes. *Calyptra* dimidiate.

20. CINCLIDOTUS. *Peristome* of 32 teeth, spirally twisted above, united below by transverse processes. *Calyptra* campanulate.

21. POLYTRICHUM. *Peristome* of 32 or 64 equidistant teeth united at their tops by a horizontal membrane. *Calyptra* dimidiate, minute.

† †

Peristome double.

A.

Inner peristome composed of distinct teeth or cilia.

(Sometimes wanting in Entosthodon and Orthotrichum.)

22. ENTOSTHODON. *Peristome* oblique; *outer* of 16 horizontal teeth from the inner membrane of the capsule; *inner* obsolete or wanting. *Capsule* with an *apophysis.*

23. FUNARIA. *Peristome* oblique; *outer* of 16 teeth; *inner* of as many cilia opposite to the teeth. *Capsule* pyriform, its mouth oblique.

24. ZYGODON. *Outer peristome* of 16 teeth, in pairs; *inner* of 8 or 16 cilia. *Calyptra* dimidiate.

25. ORTHOTRICHUM. *Outer peristome* of 16 teeth in pairs; *inner* of 8 or 16 cilia. *Calyptra* campanulate, sulcate.

B.

Inner peristome, a membrane divided above into laciniæ or segments.

26. BRYUM. *Outer peristome* of 16 teeth; *inner* of 16 equal *laciniæ,* frequently with filiform processes interposed. *Calyptra* dimidiate.

27. BARTRAMIA. *Outer peristome* of 16 teeth; *inner* of 16 equal bifid *laciniæ.* *Calyptra* dimidiate (*capsule* mostly globose.)

b.

Seta lateral.

*

Peristome single.

28. **Pterogonium.** *Peristome* of 16 entire equidistant teeth. *Calyptra* dimidiate.

29. **Leucodon.** *Peristome* of 32 teeth united in pairs. *Calyptra* dimidiate.

* *

Peristome double.

A.

Inner peristome composed of free cilia.

30. **Neckera.** *Outer peristome* of 16 teeth; *inner* of 16 cilia, sometimes connected below by a very short membrane. *Calyptra* dimidiate.

31. **Anomodon.** *Outer peristome* of 16 teeth; *inner* of 16 cilia from between the teeth. *Calyptra* dimidiate.

32. **Daltonia.** *Outer peristome* of 16 teeth; *inner* of 16 cilia from between the teeth. *Calyptra* campanulate.

B.

Inner peristome of cilia united below by a membrane or by transverse processes.

33. **Fontinalis.** *Outer peristome* of 16 teeth; *inner* of 16 cilia connected by transverse processes into a cone. *Calyptra* campanulate.

34. **Hookeria.** *Outer peristome* of 16 teeth; *inner* of 16 cilia united below into a membrane. *Calyptra* campanulate.

35. **Hypnum.** *Outer persitome* of 16 teeth; *inner* of 16 cilia united below by a membrane, and having filiform processes frequently interposed. *Catyptra* dimidiate.

1. ANDRÆA. EHRHART.

Capsule with an apophysis, 4-valved, the valves cohering by their summits to the persistent *lid.* *Calyptra* horizontally torn.

1. A. *alpina.* HEDW. Leaves spathulato-ovate, acuminate, nerveless, concave, clasping. *Hedw. Sp. Musc. p.* 49. *Musc. Brit. ed.* 2. *p.* 2. *t.* 8. *Dillen. Musc. t.* 83. *f.* 39.

On mountain rocks at an elevation of 2000 feet. From 1—2 inches high; of a purplish brown; glossy.

2. A. *rupestris.* HEDW. Leaves oblongo-lanceolate, the upper falcato-secund, nerveless. *Hedw. Sp. Musc. p.* 47. *Musc. Brit. ed.* 2. *p.* 2. *t.* 8.

Mountain rocks.

3. A. *Rothii.* MOHR. Leaves lanceolato-subulate, 1-nerved, falcato-secund. *Web. et Mohr Cr. Germ. p.* 386 *t.* 11. *f.* 7 & 8. *Musc. Brit. ed.* 2. *p.* 2. *t.* 8. *Dillen. Musc. t.* 83. *f.* 40.

Common on mountain rocks, yet it descends to the level of the sea. It is often very black.

2. PHASCUM. *Linn.*

Seta terminal. *Lid* persistent. *Calyptra* dimidiate.

The species are all minute annuals. Dissemination takes place by rupture of the capsule.

1. P. *serratum.* SCHREB. Shoots branched filiform jointed; leaves lanceolate, nerveless, deeply serrated. *Schreb. de Phasco t.* 2. *Musc. Brit. ed.* 2. *p.* 4. *t.* 5.

On shaded, moist banks, not uncommon. Mr. James Drummond found the seeds of several species of *Musci* to germinate with shoots resembling *confervæ.* In the present species I have sometimes seen the branched shoots without any jointed appearance whatever.

2. P. *alternifolium.* DICKS. Stems elongated; leaves entire, lanceolato-subulate, remote, somewhat adpressed to the stem. *Dicks. Cr. Fasc.* 1. *t.* 1. *f.* 2. *Musc. Brit. ed.* 2. *p.* 5. *t.* 5.

Near Bantry, *Miss Hutchins.* Dunkerron, County Kerry. Seeds large; perichœtial leaves very long: sides of the capsule pellucid.

3. P. *crispum.* HEDW. Leaves lanceolato-subulate, their points somewhat recurved, flexuose when dry. *Hedw. St. cr. v.* 1. *t.* 9. *Musc. Brit. ed.* 2. *p.* 6. *t.* 5.

Banks near Belfast, *Templeton.* Seeds minute; capsule with pellucid sides, of the same colour as the leaves.

4. P. *subulatum.* LINN. Leaves subulato-setaceous, straight, their nerve disappearing below their summits. *Linn. Sp. plant. p.* 1570. *Musc. Brit. ed.* 2. *p.* 6. *t.* 5.

Fallow fields and banks. Common.

5. P. *axillare.* Dicks. Leaves lanceolato-subulate, straight, their nerve disappearing below their summits, capsules axillary by innovations of the stem. *Dicks. Cr. Fasc.* 1. *p.* 2. *t.* 1. *f.* 3. *Musc. Brit. ed.* 2. *p.* 7. *t.* 5.

On banks near Belfast. *Templeton*; rare in Ireland. The leaves are neither so setaceous or so rigid and shining as in the preceding.

6. P. *patens.* Hedw. Stem short; leaves broadly lanceolate, serrated, their nerve disappearing below their summits. *Hedw. St. Cr. v.* 1. *t.* 10. *Musc. Brit. ed.* 2. *p.* 7. *t.* 5.

On banks near Belfast. *Templeton*; rare in Ireland. In a dry state the leaves are no longer patent, but appear much waved: they are reticulated with very large cells.

7. P. *muticum.* Schreb. Stem very short; leaves broadly ovate acuminate, serrate, connivent, their nerve reaching to their summits. *Schreb. de Phasco t.* 1. *f.* 11-14. *Musc. Brit. ed.* 2. *p.* 8. *t.* 5.

On moist banks not uncommon. It varies in size, yet some of the minutest growing near the sea at Dunkerron have one or two serratures near the summit of the leaves. It grows scattered and solitary. The calyptra remains adhering closely round the lid, and is consequently not one fourth as broad as the full grown capsule. The German *P. Florkeanum* differs by its acuminate entire leaves, which too are reflexed at the margins; the capsule is smaller, and not entirely concealed in the leaves.

8. P. *cuspidatum.* Schreb. Leaves ovato-acuminate, erect, entire, their nerve reaching or exceeding their summits. *Schreb. de Phasco t.* 1. *f.* 1. *Musc. Brit. p.* 8. *t.* 5.

On banks, common. The nerve of the leaf continued and becoming diaphanous, constitutes the *P. piliferum* of Schreber, and when the seta is curved to one side the *P. curvisetum* of Dickson.

9. P. *rectum.* *Withering.* Stem short; leaves ovate, mucronate; capsule globose nearly erect. *With. Bot. Arr. ed.* 4. *p.* 771. *t.* 18. *f.* 1. *Musc. Brit. ed.* 2. *p.* 10. *t.* 5.

On banks and hedges, common.

10. P. *curvicollum.* Hedw. Stem short; leaves narrow-ovate acuminate; capsule globose, *seta* curved. *Hedw. St. Cr. v.* 1. *t.* 11. *Musc. Brit. ed.* 2. *p.* 11. *t.* 5.

On banks near Dublin: more rare than the last.

3. Sphagnum. Linn.

Receptacle pedunculated. Capsule sessile, without a peristome. Calyptra irregularly torn.

Plants of very wet situations, pale; the leaves with large cells, which are reticulated, soft and flaccid. The lid flat. The seeds large, obtusely angular.

1. S. *obtusifolium* *Ehrh.* Branches tumid; leaves ovate, obtuse. *Ehrh. Crypt. No.* 241. *Musc. Brit. ed.* 2. *p.* 13. *t.* 4.

Bogs and wet places. The stems are loosely or closely tufted, abbreviated, or when growing in water sometimes lengthened to 2 or 3 feet, when the leaves are remotely set.

2. S. *squarrosum*, WEB. ET MOHR. Branches attenuated at the extremities; leaves ovato-acuminate squarrose. *Web. et Mohr. It. Suec. t.* 2. *f.* 1. *a. b. Musc. Brit. ed.* 2. *p.* 14. *t.* 4.

This is probably a variety of the preceding, it grows in similar situations, but is not quite so common.

3. S. *acutifolium* EHRH. Branches attenuated; leaves ovato-lanceolate, crowded. *Ehrh. Cr. n.* 72. *Musc. Brit. ed.* 2. *p.* 14. *t.* 4. *Dill. Musc. t.* 32. *f.* 2. A.

Bogs: common.

4. S. *cuspidatum*. EHRH. Branches attenuated; leaves lanceolato-subulate, lax. *Ehrh. Cr. n.* 25. *Musc. Brit. ed.* 2. *p.* 15. *t.* 4.

In and under water: rarely bearing fruit.

4. ŒDIPODIUM. *Schwaeg.*

Seta terminal, elongated, thick, fleshy, pellucid. Capsule without a peristome, its mouth closed with a thin fugacious membrane. Calyptra campanulate splitting at the side.

1. ŒDIPODIUM *Griffithianum*. *Schwaeg. Supp.* 2. *p.* 15. *t.* 105. *Gymnostomum Griffithianum Musc. Brit. ed.* 2. *p.* 20. *t.* 7.

On the summit of Brandon, County of Kerry. I have given this plant as Irish upon a distinct recollection of having seen it in a barren state in the above locality in 1812: in 1815, I recognised it on the summit of Snowdon.

5. GYMNOSTOMUM. *Hedw.*

Seta terminal, rigid. Capsule without a peristome. Calyptra dimidiate.

As the lid drops in a few species, a horizontal membrane may be seen across the mouth of the capsule, and in fewer still, broken portions of it remain attached.

1. G. *viridissimum*, SMITH. Leaves broadly lanceolate, patent, pointed, dotted; capsule broadly ovate, furrowed when old; lid obliquely rostrate. *Eng. Bot. t.* 1583. *Musc. Brit. ed.* 2. *p.* 18. *t.* 6. *Grimmia Forsteri Eng. Bot. t.* 2225.

On elms and other trees at Dunkerron, County of Kerry, in fruit in the early spring. There is an irregular annular membrane within the mouth of the capsule: the young fruit is almost globose. Leaves dark green, shining and recurved.

2. G. *curvirostrum*. HEDW. Leaves lanceolato-subulate, channelled, erect, nearly straight when dry; capsule cup-shaped; lid obliquely rostrate, longer than the capsule. *Hedw. St. Cr. v.* 2. *t.* 24. *Musc. Britt. ed.* 2. *p.* 19. *t.* 6.

Rocks at Fairhead, County of Antrim; *Mr. Templeton.* Mangerton.

3. G. *rupestre*. SCHWAEGR. Leaves lineari-subulate, patent, twisted when dry; capsule ovate; lid rostrate shorter than the capsule. *Schwaegr. Supp.* I. *p.* 31. *t.* xi. *Musc. Brit. ed.* 2. *p.* 19. *Supp. t.* ii.

On wet rocks at the Dargle River, County of Wicklow. Similar to the preceding. Its leaves are somewhat of a verdigris green, their nerve pale, their consistence soft, not so rigid as in *G. curvirostrum*.

4. G. *tortile*, SCHWAEGR. Stems tufted; leaves ovato-lanceolate, obtuse, their margins involute, their nerve excurrent; capsule oval, lid nearly straight, somewhat shorter than the capsule. *Schwaegr in Schrader's Journal* IV. *Sect.* 1. *p.* 17. *t.* 1. *Schwaegr. Supp.* I. *p.* 29. *t.* x.

On cliffs of mountain rocks, especially of banks of rivers, very common in the South of Ireland. The fruit rare. The tufts sometimes reach 3 inches in height and 8 or 9 inches in diameter. The leaves, even when wet, are twisted to one side; when dry, the close involution of their margins gives them a shining and solid appearance; their nerve issues, as a slightly recurved point, beyond the membranous expansion at each side; the lid is not rostrate or subulate, as in the two preceding species, but in figure a lengthened cone. The ragged remains of an annular membrane are observable within the mouth of the capsule, but they can never be taken for the teeth of a peristome. Schwagricheu's figure, in his Supplement, gives the leaves too suddenly narrowed above; in all other respects it, as well as Dr. Kunze's German specimens, entirely accord with our plant.

5. G. *ovatum*, HEDW. Leaves obovate, erect, very concave beneath the summit, where is a secondary expansion of the nerve; piliferous; capsule oval, furrowed; lid rostrate. *Hedw. St. Cr. v.* I. *t.* 6. *Musc. Brit. ed.* 2, *p.* 21, *t.* 7.

On dry banks near Dublin; also near Cork. The secondary expansion of the nerve of the leaf is often reddish-brown and opaque, while the piliferous points are always colourless and transparent: the mature capsule has a few opaque ridges running up its surface from the base. It has the habit of *Weissa lanceolata*.

6. G. *truncatulum*, HOFFM. Leaves oblong, rather acute, apiculate, nearly plane, entire, their margins slightly recurved at the base, capsule turbinate, or oval; lid obliquely rostrate. *Hoffm. Germ. v.* 2, *p.* 27. *Musc. Brit. ed.* 2, *p.* 22, *t.* 7. *Bryum truncatulum*, *Linn. sp. pl.* 1584.

On clay banks and fields, common. This plant varies much in size; in its smallest form it has been denominated *G. rufescens* by Schultze, and *G. minutulum* by Funke: it varies, too, in the length of the capsule compared to its breadth, from the commonest case when the capsule is turbinate or top-shaped, to when it becomes ovate or oblong, the *G. intermedium* of Turner, and even to having capsules quite cylindrical, as in a variety found near Cove. In all the columella is apt to adhere to the lid when this has first separated from the capsule.

7. G. *Heimii*, HEDW. Leaves lanceolate, serrated at the tops, capsule oblong, lid obliquely rostrate. *Hedw. St cr.* I. *t.* 30. *Musc. Brit. ed.* 2, *p.* 22, *t.* 7.

On clay banks and moist pastures, common. The nerve of the leaf is excurrent; the capsule with an apophysis.

8. G. *conicum.* SCHWAEGR. Leaves oblongo-ovate, acute, the nerve excurrent, their margins entire; capsules ovate; lid conical. *Schwaegr. Supp.* I. *p.* 26, *t.* ix. *Musc. Brit. ed.* 2, *p.* 23, *t.* 7.

On banks near Cork. *Mr. James Drummond:* near Dublin, and at Dunkerron, County Kerry.

9. G. *fasiculare,* HEDW. Leaves oblongo-acuminate, nearly plane, serrate, marginate, capsule pyriform; lid convex, submammillate. *Hedw. sp. t.* 4, *f.* 5—9. *Musc. Brit. ed.* 2, *p.* 23, *t.* 7.

On wet banks, common.

10. G. *pyriforme,* WILLD. Leaves oblongo-spathulate, serrated, capsule obovate, pyriform; lid convex, shortly rostrate. *Willd. Prod. Fl. Berol. n.* 896. *Musc. Brit. ed.* 2, *p.* 24, *t.* 7.

On moist banks.

11. G. *tenue,* SCHRAD. Stem very short; leaves oblong, concave, rather obtuse, erect, their nerve not percurrent; capsule oblong; lid short, conico-acuminate. *Schrad. Samml. n.* 31. *Musc. Brit. ed.* 2, *p.* 24, *t.* 7.

On old red sandstone in a stream on Brandon hill, county Kerry. The mouth of the capsule is furnished with an *annulus.*

12. G. *microstomum.* HEDW. Leaves broadly subulate, their margins involute above, flexuose, crisped when dry, capsule ovato-elliptical, contracted at the mouth; lid subulate, incurved. *Hedw. St. Cr. v.* III. *t.* 30. *Musc. Brit. ed.* 2, *p.* 25, *t.* 7.

Maritime dry banks. Very nearly allied in appearance to *Weissia controversa,* of which Mr. W. Wilson is inclined to make it a variety. I have not yet been able to find any vestige of a peristome in our plant, as it grows in maritime situations.

6. HEDWIGIA. *Hooker.*

Seta lateral. Mouth of the capsule naked. Calyptra dimidiate.

1. H. *æstiva* HOOK. Stems tufted; leaves lanceolate, twisted when dry; capsule oblong; lid elongate, subulate. *Hooker. Eng. Flora, vol.* 5, *part* 1, *p.* 68. *Gymnost. æstivum Hedw. Sp. Musc. t.* 11, *f.* 4—7. *Musc. Brit. ed.* 2, *p.* 18, *t.* 6.

Near Bantry. *Miss Hutchins.* Exterior leaves of the perichætium short, broadly ovate acuminate, the interior longer, with longer squarrose acuminations, all of them clasping; paler than the cauline leaves, which too are twisted in different sets about the stem.

7. ANICTANGIUM. *Hedw.*

Seta terminal. Mouth of the capsule naked. Calyptra campanulate.

1. A. *ciliatum*, Hedw. Leaves spathulato-ovate, acuminate, concave, the margins recurved, their points diaphanous or opaque, subserrated; capsule immersed in the perichætium; lid acuminulate. *Hedw. Sp. Musc. p.* 40. *Musc. Brit. ed.* 2, *p.* 27, *t.* 6. *A. striatum, Hook. Eng. Fl. vol.* 5, *part* 1, *p.* 12?

On mountain rocks, near Dunkerron, County Kerry. Mr. W. Wilson, whose authority is so justly great in muscology, is satisfied of the distinctions between the *A. ciliatum* and *A. striatum* of the English Flora. I have never seen the capsule entirely sessile; the seta appeared to me to vary in length, as also the length of the beak of the lid, and opacity of the leaves. I find apparently both states, and even intermediate ones, in our mountains, but I have never seen Mr. Wilson's specimens: the plate in *Bryologia Germ.* is very instructive.

8. Diphyscium. *Mohr.*

Seta terminal; capsule gibbous; peristome single, forming a membranous plicate irregularly truncated cone. Calyptra campanulate.

1. D. *foliosum* Mohr. *Obs. Bot. p.* 34. *Musc. Brit. ed.* 2, *p.* 31, *t.* 1.

On moist banks in the mountains near Dunkerron, county Kerry. Stems tufted: leaves green, compact, from a broad base, ligulate; their nerve broad, often colourless at the base, semitransparent and reddish throughout, percurrent. The leaves are papillose, their apices incurved by drying. Columella a sac about half the size and nearly of the shape of the capsule, hence larger in proportion than in any other genus; it consists of a thin membrane, darker than the capsule. The perichætial leaves have a rigid strong nerve, on each side of which, at the top, the *pagina* of the leaf is as it were torn down into shreds, but the fissures or deep laciniations are by no means accidental.

9. Tetraphis. *Hedw.*

Seta terminal. Peristome single, of 4 equi-distant, erect teeth. Calyptra campanulate, furrowed.

1. T. *pellucida*, Hedw. Stems elongated; leaves ovate, acuminate, the perichætial lanceolate; capsule cylindrical. *Hedw. Sp. Musc. t.* 7, *f.* 1. *Musc. Brit. ed.* 2, *p.* 33, *t.* 8.

On dry banks at Lough Bray, near Dublin; by no means common in Ireland.

2. T. *Browniana*, Grev. Stems short; leaves few, linear; the perichætial ovate obtuse; capsule ovate. *Greville Fl. Edinensis, p.* 230. *Musc. Brit. ed.* 2, *p.* 33. *t.* 8.

On dry shaded rocks at Lough Bray, near Dublin.

10. Splachnum. *Linn.*

Seta terminal. Peristome single, of 8 double or 16 teeth, approached in pairs, (generally reflexed when dry.) Capsule with an apophysis; calyptra campanulate, often split on one side, smooth.

1. S. *sphæricum*, LINN. *fil.* Leaves spathulato-rotundate, acuminate, subserrated; apophysis subglobose, wider than the capsule. *Linn. fil. et Swartz. Meth. Musc. t.* 1, *f.* 1. *Musc. Brit. ed.* 2, *p.* 36, *t.* 9.

On cowdung and the dung of other animals in the mountains. A very common species, varying in the size of all its parts.

2. S. *mnioides*, LINN. *fil.* Leaves ovato-lanceolate, much acuminated, concave, entire: apophysis obovate, nearly as narrow as the capsule. *Linn. fil. et Swartz. Meth. Musc. p.* 6. *Musc. Brit. ed.* 2, *p.* 38, *t.* 9.

On the mountains near Belfast, *Mr. Templeton.* Near Bantry, *Miss Hutchins.* Brandon Hill. In most specimens the teeth of the peristome are by no means reflexed, in some erect, in others arched across the mouth of the capsule. It varies in the size of the stem, of the seta, and length of the capsule and apophysis taken together.

3. S. *ampullaceum*, LINN. Leaves ovato-lanceolate, acuminate; serrated; apophysis inversely flagon-shaped, much wider than the capsule. *Linn. Sp. pl. p.* 1572. *Musc. Brit. ed.* 2, *p.* 39, *t.* 9.

Common in the mountains on cowdung.

11. ENCALYPTA. *Hedw.*

Seta terminal. Peristome single, of 16 teeth. Calyptra campanulate, smooth, entirely enclosing the mature capsule.

1. E. *streptocarpa*, HEDW. Stems elongated; leaves elliptico-lanceolate, somewhat obtuse; their nerve percurrent; capsule cylindrical, spirally striated; calyptra toothed at the base. *Hedw. Sp. Musc. t.* 10, *f.* 10—18. *Musc. Brit. ed.* 2, *p.* 62, *t.* 13.

On stones at Dunkerron, county Kerry; and elsewhere; but without fruit in Ireland. The lid is by no means so remarkably spirally striated as the capsule. The teeth of the peristome half as long as the lid, are sometimes divided, and usually united at the base. The nerve of the leaf is incurved at the summit. It has much the appearance of *Tortula subulata.*

2. E. *vulgaris*, HEDW. Leaves oblongo-elliptical, their nerve excurrent; capsule cylindrical, smooth; calyptra entire at the base. *Hedw. St. Cr.* I. *t.* 18. *Musc. Brit. ed.* 2, *p.* 63, *t.* 13.

On limestone rocks, near Dublin and Cork. In specimens from Cloghran, near Dublin, the lid had a setaceous *rostrum*; moisture having been carefully and long applied, the lid separated without being torn from the mouth of the capsule, which exhibited, in the place of a peristome, merely some irregular very short reddish processes, scarcely to be distinguished from the mouth of the capsule.

3. E. *rhaptocarpa*, SCHWAEGR. Leaves oblong, apiculate; capsule cylindrical, sulcate; calyptra ciliated at the margin, *cilia* deciduous. *Schwaegr. Supp. v.* I. *p.* 56, *t.* 16. *Musc. Brit. ed.* 2, *p.* 64. *Supp. Tab.* II.

On Ben Bulben, near Sligo, *Mr. J. T. Mackay*. The peristome, though exceedingly short, consists of 16 equidistant, triangular, acute teeth, and is therefore very different from that of *E. streptocarpa*, exhibiting filiform processes, or of the last species, where it would seem to be almost wanting, and hence has been termed fugacious by several botanists.

12. WEISSIA. *Hedw.*

Seta terminal. Peristome single, of 16 entire, equidistant teeth. Calyptra dimidiate. Capsule without an apophysis.

Grimmia apocarpa and *Grimmia maritima* come under the above definition, yet it would scarcely be justifiable to remove them to the present genus. *W. striata* shows some appearance of an apophysis.

1. W. *Starkeana*, HEDW. Stems very short; leaves ovate, their nerve excurrent, capsule ovate, erect; lid conical, obtuse; teeth of the peristome subulate. *Hedw. St. Cr. v.* 3, *t.* 34. *Musc. Brit. ed.* 2. *p.* 79, *t.* 14.

On dry banks near Dublin.

2. W. *lanceolata*, HOOK. et TAYLOR. Leaves ovate, their nerve excurrent; capsule ovate; lid obliquely rostrate. *Musc. Brit. ed.* 1, *p.* 45, *ed.* 2, *p.* 80, *t.* 14.

Near Dublin, on banks near the sea.

3. W. *striata*, HOOK. et TAYLOR. Leaves linear, denticulate, crisped when dry; capsule ovato-turbinate; lid obliquely subulate. *Musc. Brit. ed.* 1, *p.* 45, *ed.* 2, *p.* 81, *t.* 15.

Powerscourt Waterfall near Dublin. The capsule is furnished with a narrow apophysis. This plant varies much in size.

4. W. *trichodes*, HOOK. et TAYLOR. Stems very short; leaves subulato-setaceous, entire; capsule ovate, striated; lid rostrate. *Musc. Brit. ed.* 1, *p.* 45, *ed.* 2, *p.* 82. *t.* 15.

On granite rock, moistened with the spray of a rivulet near Lough Bray; very rare. It is allied in habit to *Weissia pusilla*. It is doubtful if the processes of an annular membrane within the mouth of the capsule can properly be said to be of the nature of the peristome of a *Wessia*.

5. W. *cirrata*, SCHRADER. Leaves broadly subulate, crisped when dry, their margins recurved; capsule ovate; lid rostrate. *Schrad. Diario Bot.* 1799. 2, *p.* 58. *Musc. Brit. ed.* 2, *p.* 82, *t.* 15.

On rocks in the mountains; not uncommon. It varies in the length of the leaves and of degree of reflexion of their margins, but these are never incurved, as in *W. crispula, Hedw.* hitherto unknown to Ireland.

6. W. *tenuirostris*, HOOK. et TAYLOR. Stems loosely tufted; leaves linear, acuminate, flexuose, their margins plane and waved, crisped when dry; capsule cylindrical-ovate, slightly inclined; lid rostrate as long as the capsule. *Musc. Brit. ed.* 2, *p.* 83. *Supp. Tab.* 3.

At Powerscourt Waterfall, 1812. The fruit I found at Campsie, near Glasgow, in Nov. 1822. Barren plants not uncommon on wet rocks in Ireland. *Stems* loosely tufted. Leaves loose, flexuose, spreading, entire; the nerve seen by transmitted light is less opaque than the *pagina* of the leaf. The tuft usually half an inch in height, sometimes even two inches. *Seta* scarcely an inch long. *Calyptra* dimidiate. In the plate of *Musc. Brit.* the teeth of the *peristome* are represented too broad at the base, and, perhaps, they are not exactly equi-distant, but somewhat approached in pairs, which makes the analogy with a Didymodon, viz. *D. tortuosum* MSS. from Nepal, very strong; and were it not that the latter has decidedly the peristome of *Didymodon,* I could not distinguish them. It reminds one of *Tortula tortuosa,* but this is far more closely tufted, and of a pale yellowish-green, while our plant is much greener, marks, independent of generic difference.

7. W. *curvirostra,* HOOK et TAYLOR. Leaves lineari-subulate, their margins closely reflexed, patent, shining, their nerve strong; capsule ovato-cylindrical; lid shortly rostrate. *Musc. Brit. ed.* 1. *p.* 46, *ed.* 2. *p.* 84, *t.* 14. *Bryum curvirostrum, Dickson.*

On walls and banks, common. Teeth of the peristome connected at the base. A reddish hue of the stems and leaves of the former season, while the annual shoots remain green, is very characteristic of this species. It is usually tufted.

8. W. *controversa,* HEDW. Leaves lineari-subulate, crisped when dry, their margins incurved; capsule ovato-elliptical, lid rostrate. *Hedw. St. Cr. v.* 3. *t.* 5. B. *Musc. Brit. ed.* 2. *p.* 84. *t.* 15.

On dry banks, common.

9. *W. recurvata,* HOOK. ET TAYLOR. Stems very short; leaves subulate; capsule broadly ovate; seta curved; lid rostrate. *Musc. Brit. ed.* 1. *p.* 47. *ed.* 2. *p.* 85. *t.* 15. *Grimmia recurvata Hedw. St. Cr. v.* 1. *t.* 38.

On old red sandstone on Brandon Hill: very rare.

10. *W. pusilla, Hedw.* Stems very short; leaves subulate, erecto-patent, subflexuose; capsule turbinate; seta erect; lid rostrate. *Hedw. St. Cr. v.* 2. *t.* 29. A. *Musc. Brit. ed.* 2. *p.* 86. *t.* 15.

Near Belfast. *Mr. Templeton.* Very rare:

11. W. *verticillata,* SCHWAEGR. Leaves broadly subulate, slightly concave, erecto-patent, with a strong nerve, papillose; capsule ovate; lid shortly rostrate. *Schaewgr. Supp. p.* 71. *t.* 20. *Musc. Brit. ed.* 2. *p.* 86. *t.* 15.

On the perpendicular faces of dripping rocks. Dargle river. Of a light pea-green colour. The lower portions of the stems and their leaves are frequently loaded with incrustation, which, by chemical tests, I find to be carbonate of lime, and this occurs where no limestone is found in the district.

12. W. *acuta*, Hedw. Leaves subulato-setaceous, subsecund, rigid, concave; capsule turbinate, the sides unequal; lid rostrate. *Hedw. St. Cr. v.* 3. *t.* 35. *Musc. Brit. ed.* 2. *p.* 87. *t.* 15.

On wet rocks at Kelly's Glen, near Dublin. Bantry, *Miss Hutchins;* near Belfast, *Mr. Templeton.* The dry plant, as Mr. Turner observed, is of a shining lustre.

13. Grimmia. *Ehrh.*

Seta terminal. Peristome single, of 16 teeth entire or perforated, rarely cleft, equidistant. Calyptra campanulate.

In the two first of the species following the calyptra is dimidiate, exhibiting the imperfection of our artificial divisions.

1. G. *apocarpa*, Hedw. Leaves ovato-lanceolate, recurvo-patent, their margins reflexed; capsule ovate, immersed in the perichœtium; lid shortly and obliquely rostrate. *Hedw. St. cr. v.* 1. *t.* 39. *Musc. Brit. ed.* 2. *p.* 65. *t.* 13.

Common in different situations from the level of the sea to very considerable elevations. Varies in the breadth, and colour of the leaves, and elongation of the stem: sometimes the summits of the leaves are colourless and diaphanous. The capsule varies in length. The calyptra is small in proportion to the full grown capsule, and truly dimidiate. At the Dargle is a variety, whose capsules are higher than the perichætia.

2. G. *maritima*, Turner. Stems cæspitose; leaves lanceolate, acuminate, nearly erect, crisped when dry, their margins recurved; capsule immersed in the perichœtium; lid shortly and obliquely rostrate. *Turner Musc. Hib. p.* 23. *t.* 5. *f.* 2. *Musc. Brit. ed.* 2. *p.* 66. *t.* 13.

On maritime rocks, common. The characters above given are not very decisive of the difference of this species from the preceding, with which the accurate Wahlenberg would join it. The calyptra here, too, is small in proportion to the size of the capsule, and quite dimidiate.

3. G. *saxicola*, Schwaegr. Stems very short; leaves lineari-subulate, crisped when dry, seta geniculate; capsule ovate; lid rostrate, straight. *Schwaegr. Supp. v.* 1. *p.* 82. t. 22. *Musc. Brit. ed.* 2. *p.* 67. *t.* 13.

On granite rocks near Lough Bray, County of Wicklow: very rare. Calyptra multifid at the base, closely investing the capsule. It is an extremely minute plant, and may easily be confounded with *Weissa trichodes*, which is found in similar situations.

4. G. *pulvinata*, Smith. Stems short, tufted; leaves elliptical, narrow, their margins recurved, their diaphanous points subserrulate; seta curved; capsule ovate, striated; lid conical acute. *Eng. Bot. t.* 1728. *Musc. Brit. ed.* 2. *p.* 68. *t.* 13. *Bryum pulvinatum Linn. Sp. Pl. p.* 1586.

On rocks in the mountains, common. Although the teeth of the peristome are sometimes cleft, and often perforated, yet the general habit of the plant, and its companulate calyptra, cause it properly to rank under *Grimmia*, and it is nearly allied to the following.

5. G. *tricophylla*, Grev. Stems elongated, loosely tufted; leaves waved, lanceolate, gradually tapering into a diaphonous, subserrulate point; seta curved, capsule ovate, striated; lid conical, acuminate, somewhat oblique. *Grev. Fl. Cr. t.* 100. *Musc. Brit. ed.* 2, *p.* 68. *Supp. t.* 2.

Near Dublin, *Dr. Scott* and *Dr. Stokes*. A barren plant occurs at the Aooreagh river, County of Kerry, on rocks, that, for the present, I must consider only a variety of this species. It is more closely tufted; all the shoots are black except their conspicuous hair points, that cause it to appear very hoary; by drying it is more harsh and brittle than the plant described, which has the younger shoots of a pale yellowish-green colour. The *calyptra* is split, particularly on the side to which the lid inclines.

6. G. *spiralis*, Hook. et Taylor. Stems elongated, tufted; leaves lanceolate, tapering into a diaphanous point, spirally twisted about the stem when dry; seta curved; capsule ovate, smooth. *Musc. Brit. ed.* 2, *p.* 69. *Supp. t.* 2.

On Slemish mountain, County of Antrim, *Mr. Templeton*.

7. G. *torta*, Hornsch. and Nees. Stems densely pulvinate; leaves lanceolate, acuminate, the upper subpiliferous, spirally twisted when dry. *Bryol. Germ. p.* 172, *t.* 22, *f.* 24. *Musc. Brit. ed.* 2, *p.* 70. *Supp. t.* 2.

Cliffs on Mangerton, county Kerry.

14. Didymodon. *Hedw.*

Seta terminal. Peristome single of 16 or 32 teeth, approached in pairs, or united at the base. Calyptra dimidiate.

1. D. *purpureus*, Hook. *et* Taylor. Leaves lanceolate, acuminate, their margins recurved, entire; capsule ovato-cylindraceous, oblique, substrumose at the base, striated when dry; lid conical. *Musc. Brit. ed.* 1, *p.* 65; *ed.* 2, *p.* 113, *t.* 20. *Dicr. purpureum, Hedw. Sp. Musc. t.* 36.

On banks and walls, very common. This is not much allied in habit with the other species of *Didymodon*, and perhaps the union of the approximated pairs of teeth by transverse processes would justify its separation.

2. D. *inclinatus*, Swartz. Leaves distichous, with a lanceolate sheathing, base setaceous; capsule ovate, inclined, smooth; lid conical. *Swartz. Musc. Suec. p.* 28. *Musc. Brit. ed.* 2, *p.* 114, *t.* 20.

On the mountains of Cunnamara, *Mr. J. T. Mackay*, very rare.

3. D. *nervosus*, Hook. et Taylor. Leaves obovate, apiculate, their nerve excurrent, thickened above; capsule ovate; lid shortly rostrate. *Musc. Brit. ed.* 1, *p.* 66; *ed.* 2, *p.* 115, *t.* 20.

On the cliffs of Killiney Bay, near Dublin: very rare. The capsule at length appears inclined from the bending of the top of the seta. This is a gregarious, very minute species.

4. D. *Bruntoni*, Arnott. Stems tufted; leaves lanceolato-subulate, their margins slightly recurved, subserrulate, twisted when dry; capsule ovate; lid shortly rostrate. *Arnott Disp. Musc. p.* 36. *Musc. Brit. ed.* 2, *p.* 117. *Supp. t.* 4. *D. obscurus, Kaulfuss in Sturm. Schwaegr. Supp.* 2, *p.* 80, *t.* 125. *Grev. Fl. Cr. t.* 193.

Rocks at Powersconrt Waterfall. I submit to the authority of the above-quoted able botanists in arranging this plant under *Didymodon.* Yet the peristome consists of 16 teeth, united at the base, split into unequal segments, the section not continued down to the bottom of each tooth, but only marked there with a dark line; sometimes they are entire or perforated. The peristome is very short, and when the lid is first removed lying across the mouth of the capsule. In the first edition of *Musc. Brit.* it is justly remarked, "the teeth of the peristome will be found to be irregularly divided."

5. D. *rigidulus*, Hedw. Leaves imbricated, lanceolate, carinate, much acuminated, their margins reflexed, entire, their nerve rigid, excurrent; capsule oblongo-ovate, erect; lid rostrate. *Hedw. St. Cr. v.* 3, *t.* 4. *Musc. Brit. ed.* 2, *p.* 117, *t.* 20.

On large stones and walls. The variety with cylindraceous capsules, observed by Mr. Wilson, near Beaumaris, likewise is found at Dunkerron. Upon removing the lids carefully, the teeth of the peristome are found slightly twisted at the top, which supports Mr. Turner's observation of an analogy with the genus *Tortula.*

6. D. *trifarium*, Swartz. Leaves rather distant, lanceolate, rather obtuse, carinate, their nerve scarcely percurrent; capsule oblongo-ovate, erect; lid rostrate. *Swartz. Musc. Suec. p.* 28. *Musc. Brit. ed.* 2, *p.* 118, *t.* 20.

On wet banks. The peristome of at least the small variety, first found by Mr. James Drummond, near Cork, has 16 equidistant teeth, united at the base, each marked with a longitudinal dark line, sometimes split or perforate, sometimes entire. It is probably distinct.

7. D. *crispulus*, Hook. Stems tufted; leaves erect, lanceolato-subulate, entire, their margins slightly incurved, concave, their nerve excurrent, inflexed at the summit; capsule oblongo-ovate, erect; lid rostrate. *Hook. Eng. Fl. v.* 5, *part* 1, *p.* 30.

On Dunkerron castle, County of Kerry, and on limestone near the sea. The generic character is obscure. The leaves twisted when dry.

8. D. *brachydontius*, Hook. Leaves widely spreading, linear, entire, rather obtuse; their nerve excurrent and slightly recurved towards the summit, twisted when dry; capsule oblongo-ovate; lid rostrate. *Hook. Eng. Fl. v.* 5, *part* 1, *p.* 30.

Maritime banks, at the Sound, near Kenmare: barren. There is an apophysis at the base of capsule.

9. D. *capillaceus*, Schrad. Stems elongated; loosely cœs-

pitose; leaves nearly distichous, subulato-setaceous; capsule erect, ovato-cylindraceous; lid conical. *Schrad. Spic. p.* 64. *Musc. Brit. ed.* 2, *p.* 119, *t.* 20.

On Ben Bulben, near Sligo. The largest native species of the genus when growing in moist and shaded situations.

10. D. *heteromallus*, Hook. et Taylor. Stems short; leaves subsecund, subulate; capsule ovato-cylindraceous; lid conical, obtuse. *Musc. Brit. ed.* 1, *p.* 68; *ed.* 2, *p.* 119, *t.* 20.

Wet banks, very common.

11. D. *pusillus*, Hedw. Leaves erect, rigid, from a broad, lanceolate base, subulate; capsule erect, oblong; lid obliquely rostrate. *Hedw. Sp. Musc. p.* 104. *Eng. Bot. t.* 2380. *Hook. Eng. Fl. v.* 5, *part* 1, *p.* 31.

Near Belfast. *Mr. Templeton*: afterwards *Mr. Drummond.*

12. D. *cylindricus.* Hooker. Stem short, simple; leaves from a sheathing base subulato-setaceous, entire, spreading on all sides, recurvo-patent, flexuose; capsule cylindraceous, inclined; lid conical, somewhat obtuse. *Hook. Eng. Fl. v.* 5, *part* 1, *p.* 32. *Trichost. cylindricum, Hedw. Sp. Musc. t.* 24, *f.* 7—13.

Ditch Bank, near Orange Grove, Belfast, *Mr. Drummond.* I have not yet seen native specimens; the above is on the authority of Dr. Hooker.

15. TRICHOSTOMUM. *Hedw.*

Seta terminal. *Peristome* single, of 16 teeth divided to the base or 32, approached in pairs. *Calyptra* campanulate.

1. T. *lanuginosum*, Hedw. Stems elongated, subpinnated; leaves lanceolato-subulate, acuminate, their long diaphanous points serrated, their margins recurved; capsule ovate; *setæ* short, on lateral branches; lid rostrate. *Hedw, St. Cr. v.* 3, *t.* 2, *Musc, Brit. ed.* 2, *p.* 105, *t.* 19.

On mountains; common.

2. T. *canescens*, Hedw. Stems elongated; leaves ovato-lanceolate, acuminated, their diaphanous points slightly serrated; capsule ovate; teeth of the peristome very long and filiform; lid subulate. *Hedw. St. Cr. v.* 3, *t.* 5. *Musc. Brit. ed.* 2, *p.* 106, *t.* 19.

On mountains and heaths; common.

3. T. *heterostichum*, Hedw. Stems elongated; leaves ovato-lanceolate, acuminated, their diaphanous points slightly serrated; capsule obovato-cylindraceous; teeth of the peristome rather short; lid rostrate. *Hedw. St. Cr.* 2, *t.* 25. *Musc. Brit. ed.* 2, *p.* 106, *t.* 19.

On stones on the mountains; common. The teeth of the peristome are connected at the base, very short and by no means erect. The capsule swells above, yet has a contracted mouth.

4. T. *microcarpon*, HEDW. Leaves lanceolate, narrow above, their margins recurved, their diaphanous summits subserrulate; capsule ovate or elliptical; teeth of the peristome rather short; lid rostrate. *Hedw. Sp. Musc. t.* 23, *f.* 8—12. *Musc. Brit. ed.* 2, *p.* 107, *t.* 19. *Trich. sudeticum Funck. Deutsch. Moos. t.* 18, *No.* 15.

On rocks on the mountains; not uncommon.

β. oblongum. Stems erect, tufted; leaves ovato-lanceolate, entire; capsule oblong; teeth of the peristome divided to the base.

On Secawn mountain, near Dublin. Our β may turn out to be a distinct species. The stems are black, except at the very summits; but little branched; *setæ* on terminal shoots; leaves without any diaphanous points, quite entire, wider than in the common variety. The teeth of the peristome are split down to their bases, whereas in the other not only is the fissure terminated above the base, but the teeth are united below around the mouth of the capsule. The *Trich. microcarpon* of Funcke is a paler plant with diaphanous points to the leaves.

5. T. *aciculare*, BEAUVOIS. Leaves very broadly lanceolate, very obtuse, serrulated, their nerve becoming broad and disappearing below their summits, capsule oblong; lid rostrate. *Pal. Beauv. Prodr. p.* 90. *Musc. Brit. ed.* 2, *t.* 19.

On wet stones; common. On limestone at Dunkerron it is of a pale yellowish-green throughout; on sandstone at Carig mountain it is perfectly black all over, and the serrulations of the leaves no longer visible.

6. T. *fasciculare*, SCHRADER. Leaves lanceolate, entire, their margins recurved; capsule oblongo-ovate; lid rostrate. *Schrad. Spic. Fl. Germ. p.* 61. *Musc. Brit. ed.* 2, *t.* 19. *Dillen. Musc. t.* 47, *f.* 28.

On mountain rocks; not uncommon. Besides the plant of Dillenius above quoted, with fascicled short branches, and of a dark dusky green, a variety occurs on stones at Carig mountain, County of Kerry, of a light tawny yellow, without any fascicled branches; the peristome very short, almost that of a *Dicranum*, the leaves more acuminated, their points sometimes diaphanous: it will probably prove to be distinct.

7. T. *polyphyllum*, SCHWAEGR. Stems tufted; leaves lanceolato-subulate, serrated, their margins recurved, much crisped when dry; capsule oblong; lid rostrate. *Schwaeg. Supp.* 1, *t.* 39. *Musc. Brit. ed.* 2, *t.* 19.

On rocks and walls; common.

8. T. *ellipticum*, HOOK. AND TAYLOR. Stems short, leaves lanceolate, acuminated, straight, their nerve broad, their margins plane, capsule elliptical; lid rostrate. *Musc. Brit. ed.* 1, *p.* 63, *ed.* 2, *t.* 19.

On rocks at Fairhead, County Antrim. Near Bantry, *Miss Hutchins.*

16. GLYPHOMITRION, *Bridel.*

Seta terminal. *Peristome* single, of 16 teeth approached in pairs, reflexed when dry. *Calyptra* covering the entire mature capsule, campanulate, split at the base, furrowed.

1. G. *Daviesii*, BRIDEL. Stems fastigiate; leaves lineari-lanceolate, their margins recurved, concave; capsule turbinate. *Brid. Mant. Musc. p.* 31. *Musc. Brit. ed.* 2, *t.* 13.

On rocks at Fairhead, County of Antrim, near Bantry, *Miss Hutchins.* In both instances accompanied by *Trich. ellipticum.*

2. G. *cylindraceum.* Stems fastigiate; leaves ovato-lanceolate, carinate, their margins recurved; capsule ovato-cylindraceous.

In the crevices of siliceous sandstone rocks on Blackwater Hill, County of Kerry. Stems ½ an inch high, branching in a fastigiate manner. Leaves incurved and crisped when dry, crowded towards the summit of the branch, very dark green below, of a livelier green on the top, comprising the growth of the preceding season; from a broad or ovate base lanceolate upwards, concave, carinate, the nerve percurrent, thick, the margins recurved. It has a distinct perichœtium much shorter than in the preceding, measuring half the length of the pedicell, Capsule cylindraceous, wider at the base. Lid from a convex base elongato-rostrate inclined. Calyptra covering the mature capsule, campanulate furrowed, split below into 4 or 5 *laciniæ.* Teeth of the peristome 16, approached in pairs, lanceolate, red, transversely barred. The perichœtium usually appears lateral.

17. DICRANUM. *Hedw.*

Seta terminal. *Peristome* single, of 16 bifid, equidistant teeth; *Calyptra* dimidiate.

D. *adiantoides* and D. *taxifolium* have the *setæ* lateral: these belong to the very natural genus *Fissidens* of Hedw., which to the shame of our artificial methods we know not how to separate from *Dicranum.*

A. *Leaves bifarious.* (FISSIDENS, Hedw.)

1. D. *bryoides. Swartz. Seta* terminal; perichœtial leaves similar to the cauline. *Swartz. Musc. Suec. t.* 2, *f.* 4. *Musc. Brit. ed.* 2, *p.* 88, *t.* 16.

On moist banks: common. This species varies by the length of the stem, by its sometimes remaining simple, and by the erect or inclined position of the capsule. It has long been observed, that in all the plants of this section of the Genus Dicranum, there is a duplicature of the *pagina* of the leaf proceeding from the inferior half of the nerve towards the margin next the stem. Such a structure is remarkable among the Musci. I have witnessed it only in another Genus from Nepal, whose capsules, however, are sessile, axillary, in structure like those of a Phascum.

2. D. *adiantoides*, SWARTZ. *Seta* radical; perichœtial leaves ovate, slightly convolute, pointed. *Sw. Musc. Suec. p.* 31. *Musc. Brit. ed.* 2, *p.* 90, *t.* 16.

On moist banks; common.

3. D. *taxifolium*, SWARTZ. *Seta* radical; perichœtial leaves ovate, sheathing convolute, pointed. *Sw. Musc. Suec. p.* 31. *Musc. Brit. ed.* 2, *t.* 16.

On moist banks, especially in woods; not uncommon.

B. *Leaves inserted all round the stem.*

4. D. *glaucum*, HEDW. Stems fastigiate; leaves ovato-lanceolate, straight, nerveless, entire, their margins involute above; capsule ovate, cernuous; lid rostrate. *Hedw. Sp. Musc. p.* 135. *Musc. Brit. ed.* 2, *p.* 92, *t.* 16.

On bogs and wet heaths: common. It has the nerveless, highly reticulated leaves of a *Sphagnum*, but is still more destitute of any green colour. It is found very generally scattered over the surface of our globe from the hottest to the coldest climates.

5. D. *latifolium*, HEDW. Stems short; leaves oblong, concave, entire, apiculate or piliferous; capsule erect, ovato-oblong; lid rostrate. *Hedw. St. Cr. v.* 1, *t.* 33. *Musc. Brit. ed.* 2, *p.* 92, *t.* 16.

On the road side to Woodlands, near Dublin; rare.

6. D. *longifolium*, HEDW. Stems elongated, leaves very long, subulato-setaceous, falcato-secund, serrulate; their nerve broad; capsule oblongo-ovate, nearly erect; lid rostrate. *Hedw. St. Cr. v.* 3, *t.* 9. *Musc. Brit. ed.* 2, *p.* 93, *t.* 16.

On rocks at Glenmalur, County of Wicklow.

7. D. *cerviculatum*, HEDW. Stems short; leaves lanceolato-subulate, entire, subsecund, their nerve broad; capsule ovate, subcernuous; strumose; lid rostrate. *Hedw. St. Cr. v.* 3, *t.* 37. *Musc. Brit. ed.* 2, *p.* 93, *t.* 16.

On bogs and moist banks; not common.

8. D. *flexuosum*, HEDW. Stems rigid; leaves lanceolato-subulate, much acuminated, straight, their nerve broad; *seta* flexuose; calyptra fringed at the base; capsule ovate, at length striated; lid rostrate. *Hedw. Sp. Musc. t.* 38. *Musc. Brit. ed.* 2, *p.* 94, *t.* 16.

On turf bogs and wet rocks; common. It varies in length, in colour of the leaves, which, too, are sometimes piliferous. It is found in hot as well as cold climates.

9. D. *flavescens*, SMITH. Leaves long, lanceolate, serrulate, crisped when dry; capsule oblong, erect; lid rostrate. *Eng. Bot. t.* 2263. *Musc. Brit. ed.* 2, *p.* 98, *t.* 17.

On sand on the banks of the Dargle River, County of Wicklow: very rare.

10. D. *squarrosum*, SCHRADER. Leaves from a broad sheathing base lanceolate, obtuse, squarrose, crisped when dry; capsule ovate, subcernuous; lid rostrate. *Schrad. Journal*, 1802. *Musc. Brit. ed.* 2, *p.* 98, *t.* 17.

On wet sandy spots on the banks of rivers: rather rare.

11. D. *pellucidum*, SWARTZ. Leaves lanceolate, their margins slightly undulate, serrated, rather obtuse; capsule ovate, subcernuous; lid rostrate. *Swartz. Musc. Suec. p.* 35. *Musc. Brit. ed.* 2, *p.* 99, *t.* 17.

On wet sides of streams. Mr. Templeton's specimens of *D. virens* of Mr. Turner's *Musc. Hib.* prove to be *D. pellucidum.* He pointed it out to me in its locality at Larne, which being nearly on a level with the sea, could scarcely be expected to produce an alpine species. Nor did I meet *D. virens* in the late Dr. Scott's collection. I suppose, for the present, it is better omitted from the Irish catalogue.

12. D. *crispum*, HEDW. Stems short; leaves from a sheathing base setaceous, somewhat distichous, flexuose and recurved, crisped when dry; capsule ovate, erect; lid with a long beak. *Hedw. St. Cr. v.* 2, *t.* 33. *Musc. Brit. ed.* 2, *p.* 99, *t.* 17.

On dry banks: near Belfast, *Mr. Templeton;* near Killarney, *Mr. W. Wilson.* The stems and leaves have a light pea-green colour. It appears to be rather rare in Ireland.

13. D. *Scottianum*, TURNER. Stems cæspitose; leaves erecto-patent subulate, their tops scarcely subserrulate, crisped when dry; capsule ovato-cylindraceous, nearly erect; teeth of the peristome nearly entire; lid with a long beak. *Turn. Musc. Hib. t.* 6, *f.* 1. *Musc. Brit. ed.* 2, *p.* 100, *t.* 18. *D. flagellare Eng. Fl. v.* 5, *part* 1, *p.* 41.

On stones in woods, and on dry banks: wood at Blackwater bridge, County of Kerry: banks of Looscaunuch Lake, County of Kerry. Pedicells waved. In the same tuft some stems have the leaves subsecund, others directed in all ways. The peristome is most remarkable, and keeps it distinct from every other known species. The teeth are short, marked down the middle by a longitudinal dark line, they are rarely perforate, and still more rarely split, and then only at the very summit. It may thus be easily known from *D. flagellare Hedw.* besides by the want of "flagelliform" branches, by the more erect capsule whose mouth too is narrower, by the crispation of the leaves when dry, and by the shorter pedicells as well as the general smaller size of the plant.

14. D. *flagellare*, HEDW. Elongations of the stems flagelliform; leaves of the stem subulate, serrulate, falcate; of the elongations shorter adpressed; capsule subcylindraceous subcernuous; lid with a long beak. *Hedw. St. cr. v.* 3, *t.* 1. *Weber et Mohr. Bot. Tasch. p.* 173. *Wahl. Fl. Lapp. p.* 337.

In the wood at Glenflesk, County of Kerry: very rare. I have seen no other British specimens than from the locality quoted. It is more likely to be confounded with *D. scoparium* than with the preceding; but may be known by the flagelliform shoots, by the more erect capsules, and pale calyptra, as well as by the leaves on the lower part of the stems being adpressed not falcate; the leaves are shorter and less evidently serrulate.

15. D. *undulatum*, EHRHART. Stems elongated; leaves nearly plane, lanceolate elongato-acuminate, serrulate at the points, transversely undulate; capsule cylindraceous, cernuous; lid with a long beak. *Ehrh. Crypt. (according to Mohr.) Musc. Brit. ed.* 2. *p.* 100, *t.* 18.

Near Bantry, *Miss Hutchins.* At Dunkerron, and woods at Killarney.

16. D. *scoparium*, HEDW. Stems elongated; leaves narrow, subulate, canaliculate, secund; capsule cylindraceous, arched, cernuous; lid with a long beak. *Hedw. Sp. Musc. p.* 126. *Musc. Brit. ed.* 2, *p.* 101, *t.* 18.

In, and in the vicinity of, woods; common. Sometimes the perichœtium is very remarkably large, containing from 1 to 4 *setæ.* The calyptra of the yet unformed capsule dusky; the capsules themselves turning dark brown, or quite black. It varies very much in size and length of the leaves and degree of crispation of the leaves when dry. In the variety with black capsules a *struma* may be observed at their bases.

17. D. *varium*, HEDW. Stems short; leaves narrow, hastato-lanceolate; capsule ovate; lid rostrate. *Hedw. St. Cr. v.* 2, *t.* 34. *Musc. Brit. ed.* 2, *p.* 102, *t.* 17.

On moist banks and fallow fields; common. This varies by the colour of its leaves, which are sometimes reddish and even lurid, their direction, which is sometimes secund, and the degree of inclination or position of the capsule on the *setæ.*

18. D. *heteromallum*, HEDW. Leaves subulate, falcato-secund, nearly entire; capsule ovate, cernuous; lid with a long beak. *Hedw. St. Cr. v.* 1, *t.* 26. *Musc. Brit. ed.* 2, *p.* 103, *t.* 18.

On moist banks; common. At Aooreagh River, near Sneem, I have observed a considerable extent of the bank covered with this species having the pedicells so flexuose and bent, that I know not how that state is to be distinguished from *D. cygneum* of Hedwig.

19. D. *subulatum*, HEDW. Leaves from a broad sheathing base subulato-setaceous, secund, entire; capsule ovate, subcernuous; lid with a long beak. *Hedw. Sp. Musc. t.* 34. *Musc. Brit. ed.* 2, *p.* 103, *t.* 18.

Sides of Maryburn rivulet: *Mr. Templeton.*

20. D. *fulvellum*, SMITH. Stems tufted; leaves subulato-setaceous, somewhat secund, entire, those of the *perichætium* convolute; *setæ* scarcely longer than the leaves; capsule erect, turbinate, furrowed when old; lid conico-rostrate. *Sm. Flor. Brit. p.* 1209. *Musc. Brit. ed.* 2, *p.* 103. *Supp. t.* 3.

On Macgillicuddy's Reeks. This is altogether an alpine species, and has the strongest analogy with *Weissia acuta*, the teeth of the peristome being often simply perforate, more rarely entire.

18. TORTULA, *Hedw.*

Seta terminal. *Peristome* single of 32 teeth spirally twisted above, united more or less below into a tubular membrane. *Calyptra* dimidiate.

1. T. *rigida*, TURNER. Stems very short; leaves few linear more or less broad, incurved, their nerve more or less broad, concave, rigid; their margins involute; capsule oblong; lid rostrate. *Turner Musc. Hib. p.* 43. *Musc. Brit. ed.* 2, *p.* 53, *t.* 12.

On walls and ditches; very common. This is so variable in the breadth of the leaves, the breadth of their nerves which are sometimes concealed by the involute edges of the leaves, and by the length of the *rostrum* of the lids that I find the greatest difficulty in comprehending the *T. enervis* and *T. brevirostris* of authors. The former from Stiblington, in Kent I find has a real nerve, the outer leaves to be much shorter and wider than the inner, and the lid not to exceed in some instances half the length of the capsule. Again, Funcke's specimens of *T. brevirostris* are furnished with lids at least as long, and have the leaves of the shape of the outer of the Stiblington plant. *T. brevirostris* of Musci Americani, as well as specimens sent to me by Mr. Drummond under that name from North America, are properly our Irish *T. rigida.*

2. T. *convoluta*, SWARTZ. Stems short; leaves oblongo-lanceolate, acute, their margins plane; those of the *perichætium* closely convolute; capsule oblong; lid rostrate. *Swartz. Musc. Suec. Musc. Brit. ed.* 2, *p.* 54, *t.* 12.

On ditches near Bantry, *Miss Hutchins.* Dunkerron, not uncommon. The leaves are smaller than in the other Irish *Tortulæ.* The capsule is slightly curved at the top to one side. The leaves of the past season are brownish; of the present, of a lively green, which also is the hue of the *perichætium;* upon examination we find this to be truly lateral or radicular. The *Tort. pilfera* of *Hook. Musc. exot. t.* 12, is similarly circumstanced.

3. T. *revoluta*, BRIDEL. Stem short; leaves lanceolate acute, their margins closely revolute, those of the *perichætial* leaves sheathing, involute; capsule oblong; lid shorter than the capsule. *Bridel in Schrad. Journal.* 1800, *v.* 1, *p.* 299. *Musc. Brit. ed.* 2, *p.* 54, *t.* 12.

On ditches near Cork, *Mr. James Drummond.* Rare.

4. T. *muralis*, HEDW. Stems short; leaves patent, narrow, oblong, their margins recurved, their nerve excurrent into a long diaphanous point; capsule ovato-cylindraceous; lid conical, acuminate. *Hedw. Sp. Musc. p.* 123. *Musc. Brit. ed.* 2, *p.* 55, *t.* 12.

On walls and ditches; very common. The nerve is incrassated above; the diaphanous point without any serrulations; the teeth of the peristome are not united till they reach downwards to the mouth of the capsule.

5. T. *ruralis*, SWARTZ. Leaves ovato-oblong, keeled, patent, recurved, their nerve excurrent into a long diaphanous point: capsule cylindrical, erect, slightly curved; lid subulate; the peristome tubular beneath. *Swartz. Musc. Suec. Musc. Brit. ed.* 2, *p.* 56, *t.* 12.

On the ground, on walls, and on trees; common.

6. T. *subulata*, HEDW. Stems short; leaves erecto-patent, oblongo-lanceolate, apiculated, their margins plane; capsule cylindrical, erect, slightly curved; lid subulate, peristome tubular below. *Hedw. Sp. M. p.* 122, *t.* 27. *Musc. Brit. ed.* 2, *p.* 57, *t.* 12.

On banks and walls; not uncommon.

7. T. *unguiculata*, HOOK. AND TAYLOR. Stems elongated; leaves oblongo-lanceolate, obtuse, apiculated, their margins slightly recurved; capsule oblongo-ovate; lid long, rostrate. *Musc. Brit. ed.* 1, *p.* 33, *ed.* 2, *p.* 57, *t.* 12. *Barbula unguiculata, Hedw. St. Cr. v.* 1. *t.* 23.

On banks and hedges; common.

8. T. *cuneifolia*, TURNER. Stems very short; leaves broadly obovate, slightly concave, their nerve excurrent into a rigid point; capsule oblong; lid with a short beak. *Turn. Musc. Hib. p.* 51. *Musc. Brit. ed.* 2, *p.* 59, *t.* 12.

On ditches near Bantry, *Miss Hutchins*; rare.

9. T. *tortuosa*, HEDW. Stems elongated; leaves patent, lineari-subulate keeled, waved, crisped when dry; capsule cylindrical; lid with a long beak. *Hedw. Sp. Musc. p.* 124. *Musc. Brit. ed.* 2, *p.* 59, *t.* 12.

On limestone; common.

10. T. *fallax*, SWARTZ. Stems elongated; leaves lanceolate, acuminated, keeled, patent or recurved, their margins reflexed; capsule oblong; lid with a long beak. *Sw. Musc. Suec. p.* 40. *Musc. Brit. ed.* 2, *p.* 59, *t.* 12.

In fields, on ditches and walls; common.

11. T. *gracilis*, HOOKER AND GREVILLE. Stems elongated; leaves lanceolato-acuminate, erect, rigid when dry, very straight, their margins recurved; capsule oblongo-ovate; lid rostrate, short. *Hook. and Grev. in Brewst. Journal. v.* 1, *p.* 300. *Musc. Brit. ed.* 2, *p.* 61, *Supp. t.* 2.

Near Cork, *Mr. James Drummond*; very rare.

19. ZYGOTRICHIA, *Bridel.*

Seta terminal. Peristome of 32 teeth in pairs, spirally twisted above, below united by transverse processes. Calyptra dimidiate. *Bridel Bryolog. Univ. v.* 1, *p.* 521.

1. Z. *cylindrica.* Stems erect, branched; leaves lanceolate-

subulate, entire, their margins recurved ; capsule cylindraceous, somewhat narrower at the mouth ; lid elongato-conical.

On wet sand on the banks of the Dargle river, County Wicklow. *Stems* 1—2 inches high ; branched, loosely tufted. *Leaves* long, acuminated, but without any excurrent point, of a light yellowish green, much crisped and twisted when dry. *Setæ* one inch or more high, very slender, flexuose, reddish below, of a light yellowish-green while the capsule is yet young. *Capsule* slightly ovato-cylindraceous, very smooth, erect, its mouth narrow. *Lid* near the mouth of the capsule contracts and rises up as an acuminated cone. *Calyptra* dimidiate. Peristome of 32 filiform teeth united in pairs (more rarely three together) by transverse processes ; at their summits they are slightly spirally twisted. The lid, as in Tortula, exhibits spiral *striæ* externally. The peristome is short and very pale, as observed in the *Z. leucostoma* described by Mr. Brown under the name of *Barbula leucostoma.* I have another species from Madeira.

20. CINCLIDOTUS, *Beauvois.*

Seta terminal. *Peristome* single, of 32 filiform spirally twisted teeth, anastomosing at the base, and fixed by their tops to the summit of the *columella. Calyptra* campanulate.

The lid may be observed to be spirally striated externally, which is an excellent indication of the twisting of the teeth, although this is by no means so remarkable as in most of the *Tortulæ.*

1. C. *fontinaloides, Beauv. Prodr. p.* 28 *and* 32. *Musc. Brit. ed.* 2, *p.* 51, *t.* 11.

On stones or stems of trees, occasionally inundated by running water. Several capsules occurring along a principal stem, the fructification might be supposed to be lateral ; but it appears really to be fixed on the tops of very short branches. The lid is conico-acuminate.

21. POLYTRICHUM, *Linn.*

Seta terminal. *Peristome* single of 32 or 64 short equidistant teeth, their summits united by a flat membrane. *Calyptra* dimidiate, small.

The teeth are not transversely striated as in other genera.

1. P. *undulatum,* HEDW. Leaves thin, lanceolate, their margins plane, waved, denticulate ; their nerve winged ; capsule cylindraceous, curved ; lid subulate. *Hedw. St. Cr. v.* 1, *t.* 16, 17. *Musc. Brit. ed.* 2, *p.* 43, *t.* 10.

On banks and in woods ; frequent. The leaves are less rigid than in the congeners. A most remarkable variety occurs at the Dargle river, with the leaves much crisped when dry, the *seta* not exserted out of the perichætial leaves, the capsule very short, nearly erect and turbinate ; the *calyptra* remaining fixed below the capsule after the falling of the lid, as sometimes occurs in *Timmia.*

2. P. *piliferum,* SCHREBER. Leaves lanceolato-subulate, their margins involute, entire, terminating in a diaphanous hair-like point : capsule ovate, obtusely quadrangular, furnished with an apophysis ; lid conical. *Schreb. Fl. Lips. p.* 74. *Musc. Brit. ed.* 2, *p.* 44, *t.* 10.

On banks, especially in the mountains; common. The young *calyptra*, of a light lake red, render tufts of this species very conspicuous. The stems sometimes exceed an inch in length; the lid has a very short beak.

3. P. *juniperinum*, WILLDENOW. Leaves lanceolato-subulate, their margins involute, entire, their points acuminated, opaque, subserrated; capsule ovate obtusely quadrangular, furnished with an apophysis; lid obliquely rostrate. *Wild. Fl. Berol. Musc. Brit. ed.* 2, *p.* 45, *t.* 10.

On heaths and banks in the mountains; common. The serratures of the leaves sometimes not to be observed. The young *calyptra*, of a brownish straw colour, easily distinguish this species from the preceding.

4. P. *commune*, LINN. Stems elongated; leaves patent lineari-subulate, their margins plane, serrated as well as the points of the keels; capsule oblong, quadrangular, with an evident apophysis. *Linn. sp. pl.* 1573. *Musc. Brit. ed.* 2, *p.* 46, t. 10.

On heaths and in woods; very common. The stems are usually simple, varying much in height, from two inches to a foot: the leaves are sometimes short and broad, and present diaphanous margins.

5. P. *alpinum*, LINN. Stems elongated, branched; leaves patent, subulato-lanceolate, their margins plane, serrated as well as the points of the keels; capsule ovate, oblique, with an indistinct apophysis. *Linn. Sp. Pl. p.* 1573. *Musc. Brit. ed.* 2, *p.* 48, *t.* 11.

On subalpine mountains; not uncommon. The capsules sometimes turn perfectly black, as do the tops of the *setæ*.

6. P. *urnigerum*, LINN. Stems elongated, branched; leaves erecto-patent, lanceolate, acute, their margins plane, serrated; capsule nearly erect, cylindraceous, without an *apophysis*. *Linn. sp. pl. p.* 1573. *Musc. Brit. ed.* 2. *p.* 49, *t.* 11.

On dripping banks; not uncommon.

7. P. *aloides*, HEDW. Stems rather short; leaves lineari-lanceolate, obtuse, their margins plane, their tops as well as those of the keels serrated; capsule nearly erect, cylindraceous, without an *apophysis*. *Hedw. St. Cr. v.* 1, *t.* 14. *Musc. Brit. ed.* 2, *p.* 49, *t.* 11.

On moist banks; common, When the capsule is subglobose, it is the *P. nanum* of Hedwig.

† † *Peristome double.*

A. *Inner peristome of distinct teeth or cilia.*

22. ENTOSTHODON, *Schwaegr.*

Seta terminal. *Peristome* double, outer of 16 oblique teeth, lying across the mouth of the capsule; the inner a membrane, barred with dark lines (corresponding to the interstices of the teeth) and sometimes splitting. *Capsule* pyriform, with an *apophysis*. *Calyptra* dimidiate, inflated below.

1. E. *Templetoni, Schwaegr. Supp.* 2, *p.* 44. *t.* 113. *Weissia Templetoni, Musc. Brit. ed.* 1, *p.* 42, *ed.* 2, *p.* 77, *t.* 14.

On moist banks, especially of rivers; common.

23. FUNARIA, *Schreber.*

Seta terminal. *Peristome* double, oblique: the outer of 16 teeth; the inner of as many *cilia*, each under a tooth of the outer. *Capsule* pyriform, its mouth oblique. *Calyptra* dimidiate inflated below.

It will be seen by the above characters that Entosthodon very nearly coincides with the present genus, and that it is not impossible but that at a future time the name of *Eng. Bot. Funaria Templetoni* may be restored.

1. F. *hygrometrica*, HEDW. Leaves very concave, broadly ovate, apiculated, entire, their nerve excurrent; seta curved, flexuose. *Hedw. Sp. Musc. p.* 172. *Musc. Brit. ed.* 2, *p.* 121, *t.* 20.

Extremely common in a variety of situations, not only in Ireland, but in every visited part of the globe. Hence we should be prepared to expect some variations. Mr. James Drummond sowed the seeds of *F. Muhlenbergii, Turn.* in a garden pot placed in a frame, using precautions: there came up a few plants resembling this species among more that were intermediate; but the most of all turned out to be *F. hygrometrica*. I therefore suppose *F. Muhlenbergii* is a variety that takes its character from the limestone soil, on which alone it is found. Mr. Drummond was satisfied that *F. hibernica, Hook.* was nothing more.

24. ZYGODON. *Hooker and Taylor.*

Seta terminal. *Peristome* double, the *outer* of 16 teeth approached in pairs; the inner of 8 or 16 cilia. *Calyptra* dimidiate, smooth.

1. Z. *conoideus*, HOOK. AND TAYLOR. Leaves acute, cilia 8. *Musc. Brit. ed.* 1, *p.* 74, *ed.* 2, *p.* 123, *t.* 21.

On trees; Orange Grove, near Belfast, *Mr. Templeton.* Woods at Killarney. The capsule is narrow and striated; the lid obliquely rostrate. The nerve does not always reach the point of the leaf. An old capsule I observed under the lens in a drop of water, when pressed, poured out cylindrical, jointed, pellucid bodies, tipped at one end with a brown ball greater in diameter than the cylinder. These were probably seeds in a state of germination.

24. ORTHOTRICHUM, *Hoffman.*

Seta terminal. *Peristome* mostly double; the *outer* of 16 teeth approached in pairs; the inner of 8 or 16 cilia. *Calyptra* campanulate, sulcate, more or less hirsute.

1. O. *cupulatum*, HOFFMAN. Leaves ovato-lanceolate erecto-

patent, straight and rigid when dry; capsule nearly sessile, furrowed; peristome single; *calyptra* at length quite glabrous. *Hoff. Germ. v.* 2, *p.* 26. *Musc. Brit. ed.* 2, *p.* 125, *t.* 21.

On rocks, especially limestone; not uncommon.

2. O. *anomalum*, HEDW. Leaves ovato-lanceolate, erecto-patent, straight when dry; peristome single; *calyptra* somewhat hairy. *Hedw. St. Cr. v.* 2, *t.* 37. *Musc. Brit. ed.* 2, *p.* 125, *t.* 21.

On rocks, especially limestone; not uncommon. The ridges on the capsule are most evident near its mouth, where they are reddish and prominent; in some varieties the capsule is not evidently tuberculated.

3. O. *affine*, SCHRADER. Leaves broadly lanceolate; capsule deeply furrowed, nearly sessile; *teeth* of the peristome eight, geminate, *cilia* eight, filiform; calyptra hirsute. *Schrad. spicil. p.* 67. *Musc. Brit. ed.* 2, *p.* 127, *t.* 21.

On trees; not uncommon: varies in size.

4. O. *diaphanum*, SCHRADER. Stems very short; leaves lanceolate acuminate, their points diaphanous; *teeth* of the peristome equidistant; *cilia* 16; calyptra slightly hirsute. *Schrad. spic. p.* 69. *Musc. Brit. ed.* 2, *p.* 128, *t.* 21.

On trees, common; more rare on stones, as at Killiney on granite.

5. O. *rivulare*, SMITH. Stems procumbent; leaves broadly lanceolate, obtuse; *cilia* 16, setaceous; *calyptra* glabrous. *Sm. Flor. Brit. p.* 1266. *Musc. Brit. ed.* 2, *p.* 128, *t.* 21.

On stones in streams; not uncommon.

6. O. *striatum*, HEDW. Leaves lanceolate, patent, straight when dry; capsule slightly striated; *cilia* 16, moniliform; *calyptra* slightly hairy. *Hedw. St. Cr. v.* 2, *t.* 3. *Musc. Brit. ed.* 2, *p.* 128, *t.* 21.

On stones and trees.

7. O. *Hutchinsiæ*, SMITH. Leaves lanceolate, erect, rigid; capsule clavate, furrowed; *cilia* 8, *calyptra* very hairy. *Eng. Bot. t.* 2523. *Musc. Brit. ed.* 2, *p.* 131, *t.* 21.

On large stones, near Bantry, *Miss Hutchins*; in similar places in the counties of Wicklow and Kerry; not uncommon. The stems are remarkably dark, almost black below, their tops of a brownish-yellow.

8. O. *crispum*, HEDW. Leaves lanceolato-subulate, much crisped when dry; oblongo-clavate, furrowed; *teeth* of the peristome 8 geminate; *cilia* 8; *calyptra* very hairy. *Hedw. St. Cr. v.* 2, *t.* 35. *Musc. Brit. ed*, 2, *p.* 133, *t.* 21.

On trees, common; sometimes on stones. A variety occurs at Askew wood, near Sneem, County Kerry, ripening on the same trees a month or two earlier than the common kind, and with the *calyptra* nearly glabrous, the few hairs never overtopping it; the peristome larger; each of the eight geminate teeth split nearly half-way down; the lid short.

9. O. *pulchellum*, SMITH. Leaves narrow-lanceolate, crisped when dry; *teeth* of the peristome 16, approached in pairs; *cilia* 16; *calyptra* nearly smooth. *Eng. Bot. t.* 1787. *Musc. Brit. ed.* 2, *p.* 134, *t.* 21.

On trees in Ballinascorney Glen, near Dublin. A small species. The calyptra plicate and coloured at the base.

B. *Inner peristome, a membrane divided above.*

26. BRYUM. *Linn.*

Seta terminal. *Peristome* double; the *outer* of 16 teeth; the *inner* of a membrane cut above into 16 equal segments, with filiform processes interposed. *Calyptra* dimidiate.

1. B. *palustre*, SWARTZ. Leaves lanceolate, obtuse, entire, their margins revolute; capsule oblong, subcernuous, suberect, sulcated; lid conical. *Swartz. Musc. Suec. Musc. Brit. ed.* 2, *p.* 193, *t.* 28.

In marshy spots; not uncommon, even at low elevations. An annulus is present at the mouth of the capsule.

2. B. *dealbatum*, DICKSON. Stems short; leaves lanceolate acute, plane, reticulated, serrated at the points; capsule pyriform, nearly erect. *Dicks. Cr. Fasc.* 2, *t.* 5, *f.* 3. *Musc. Brit. ed.* 2, *p.* 196, *t.* 28.

Mountains in the north of Ireland, *Mr. Templeton.* This is extremely rare. The above is entered on the verbal authority of the late Mr. Templeton. No locality is given by Mr. Turner in his *Musc. Hib.* With respect to *Br. triquetrum*, on examining the late Dr. Scott's collection I found specimens marked by that name, but then they were all *Bryum ventricosum.*

3. B. *julaceum*, SCHRADER. Leaves closely imbricated, broadly ovate, concave, entire, their nerve scarcely percurrent; capsule obovato-cylindraceous, pendulous. *Schrad. spicil. p.* 70. *Musc. Brit. ed.* 2, *p.* 197, *t.* 28.

On sandy spots in rocky banks of rivers; rather rare. The stems are slender, aggregate, of a light yellowish-green, and glossy.

4. B. *crudum*, HUDSON. Stems simple; leaves rigid, lanceolate, erect, the upper narrower, their margins serrulate, their nerve not quite percurrent; capsule oblongo-pyriform, cernuous. *Huds. Fl. Ang. p.* 491. *Musc. Brit. ed.* 2, *p.* 198, *t.* 28.

On the higher mountains; not uncommon.

5. B. *carneum*, LINNÆUS. Stems simple; leaves lanceolate, reticulated, subserrulate, their nerve not quite percurrent; capsule obovate, pendulous. *Linn. sp. pl. p.* 1587. *Musc. Brit. ed.* 2, *p.* 198, *t.* 29.

On wet banks; near Dublin, Cork, and Belfast. Of a small size; the capsules nearly round; colour pale.

6. B. *argenteum*, LINNÆUS. Leaves closely imbricated,

broadly ovate, acuminulate, subserrulate, very concave, their nerve not quite percurrent; capsule pyriform, pendulous. *Linn. sp. plant, p.* 1386. *Musc. Brit. ed.* 1, *p.* 199, *t.* 29.

On walls and roofs; very common. The upper part of the leaves are thin and colourless, hence the stems assume a silvery appearance.

7. B. *Zierii*, Dickson. Leaves closely imbricated, broadly ovate, acuminate, concave, reticulated, entire, their nerve not quite percurrent; capsule long, clavate, cernuous. *Dicks. Cr. Fasc.* 1, *t.* 4, *f.* 10. *Musc. Brit. ed.* 2, *p.* 199, *t.* 29.

On Brandon Hill, County Kerry: on the highest of our mountains only.

8. B. *capillare*, Linnæus. Leaves ovate, twisted when dry, entire, their nerve excurrent into a hair-like point, slightly marginate; capsule oblong, pendulous. *Linn. sp. pl. p.* 1586. *Musc. Brit. ed.* 2, *p.* 200, *t.* 29.

On walls and banks; very common.

9. B. *cæspititium*, Linnæus. Stems short; leaves ovato-acuminate, nearly entire, their margins slightly recurved, their nerve excurrent; capsule pyriform, pendulous. *Linn. sp. pl. p.* 1586. *Musc. Brit. ed.* 2, *p.* 201, *t.* 29.

On banks, walls, and roofs; very common. A very variable species.

10. B. *turbinatum*, Swartz. Leaves ovato-acuminate, nearly entire, their margins slightly recurved, their nerve excurrent; capsule elongato-pyriform, pendulous. *Swartz Musc. Suec. p.* 49. *Musc. Brit. ed.* 2, *p.* 202, *t.* 29.

Bogs, near Dublin; rather rare.

11. B. *nutans*, Schreb. Stems short; leaves erect, lanceolate, acuminate, serrated, their nerve percurrent; capsule oblongo-pyriform, pendulous. *Schreb. Fl. Lips. p.* 81. *Musc. Brit. ed.* 2, *p.* 203, *t.* 29.

On rocks and stones.

12. B. *elongatum*, Dickson. Stems short; leaves erect, elongato-lanceolate, acuminated, serrated, their nerve percurrent; capsule elongato-clavate, not quite pendulous. *Dicks. Fasc.* 2, *p.* 8. *Musc. Brit. ed.* 2, *p.* 204, *t.* 30.

On subalpine mountains: not rare.

13. B. *alpinum*, Linnæus. Stems rigid; leaves imbricated, erect, lanceolate, somewhat obtuse, subserrulate, their margins revolute, their nerve percurrent, capsule oblongo-ovate, pendulous. *Linn. Mant. v.* 2, *p.* 309. *Musc. Brit. ed.* 2, *p.* 205, *t.* 28.

On wet rocks in the mountains; common. The purple colour of its shining rigid leaves is characteristic.

14. B. *ventricosum*, DICKSON. Stems elongated; leaves oblongo-acuminate, subserrulate, their margins recurved, their nerve excurrent; capsule oblong, pendulous. *Dicks. Cr. Fasc.* 1, *p.* 4. *Musc. Brit. ed.* 2, *p.* 205, *t.* 30.

On bogs and marshes; common. At Turk waterfall a variety occurs with very wide, serrulate, rigid leaves, of a dark purplish-brown.

15. B. *roseum*, SCHREBER. Leaves patent, obovato-spathulate, acute, serrated, waved; their nerve percurrent; capsule oblongo-ovate, pendulous. *Schreb. Fl. Lips. p.* 84. *Musc. Brit. ed.* 2, *p.* 200, *t.* 29.

In woods. Fruit at Blarney, County Cork, *Mr. James Drummond.* A variety at Blackwater has piliferous leaves.

16. B. *ligulatum*, SCHREBER. Leaves ligulate, undulate, reticulated, marginated, denticulate, their nerve excurrent; capsule oblong, pendulous; lid conical. *Schreb. Fl. Lips. p.* 84. *Musc. Brit. ed.* 2, *p.* 207, *t.* 30.

Banks of streams and in woods; common. *Setæ* often many from the same *perichætium.*

17. B. *punctatum*, SCHREBER. Leaves obovato-rotundate, their base narrow, reticulated, marginated, their nerve seldom quite percurrent; capsule oblong, pendulous; lid rostellate. *Schreb. Fl. Lips. p.* 85. *Musc. Brit. ed.* 2, *p.* 207, *t.* 30.

In wet places, in woods, sometimes in bogs; common. The nerve of the leaf is sometimes, though very rarely, excurrent. The seeds are large: but are they really seeds? Pressed in water, under the lens, a sac appears to burst on one side and discharge numerous dark punctiform bodies that do not in the least cohere: the sac is reticulated.

18. B. *rostratum*, SCHRADER. Leaves broadly ovate, reticulated, marginated, obtuse, denticulated; their nerve excurrent; capsule ovate, pendulous; lid rostrate. *Schrad. spicil. p.* 72. *Musc. Brit. ed.* 2, *p.* 208, *t.* 30.

On the banks of rivers in woods; not uncommon. The outer peristome is paler than the inner, contrary to the general rule.

19. B. *marginatum*, DICKSON. Leaves ovate, acute, reticulated, marginated, serrated, their nerve excurrent; capsule oblong, pendulous. *Dicks. Cr. Fasc.* 2, *t.* 5, *f.* 1. *Musc. Brit. ed.* 2, *p.* 208, *t.* 31.

Banks of the Dargle river, *Dr. Whitley Stokes.* This differs from the preceding, not only by the shape of the leaves, but still more by the structure of the peristome.

20. B. *hornum*, SCHREBER. Stems elongated; leaves lanceolate acute, reticulated, denticulated, their nerve scarcely percurrent; capsule oblong, pendulous; lid hemispherical, mucronulate. *Schreb. Fl. Lips. p.* 83. *Musc. Brit. ed.* 2, *p.* 209, *t.* 31.

In woods and marshes; common. Here, as in *B. rostratum* and

B. cuspidatum, the outer peristome is of a pale yellow, while the inner is reddish-brown.

27. Bartramia, *Hedw.*

Seta terminal. *Capsule* subglobose. *Peristome* double; the *outer* of 16 *teeth;* the *inner*, a membrane divided into 16 bifid segments. *Calyptra* dimidiate.

1. B. *pomiformis*, Hedwig. Leaves patent, subulate, strongly serrated, twisted when dry, their nerve percurrent. *Hedw. sp. Musc. p.* 164. *Musc. Brit. ed.* 2, *p.* 144, *t.* 23.

On dry banks; not uncommon. It varies in the length of its tufted stems, as also of the leaves.

2. B. *ithyphylla*, Bridel. Leaves rigid, erecto-patent, nearly entire, their nerve scarcely percurrent, straight when dry. *Brid. Musc. v.* 2, *p.* 1, *t.* 6. *Musc. Brit. ed.* 2, *p.* 145, *t.* 22.

On dry banks; in the Dargle, County Wicklow, &c.

3. B. *gracilis*, Flörke. Stems elongated; leaves recurvo-patent, lanceolate, canaliculate, serrated; *setæ* at length lateral. *Flörke in Schrad. Journ. Musc. Brit. ed.* 2. *p.* 14 6. *t.* 23.

On rocks in alpine districts.

4. B. *fontana*, Swartz. Stems fastigiate; leaves closely imbricated, rigid, erect, broadly ovate or lanceolate, acuminated, nearly plane, serrated; *setæ* at length lateral. *Swartz in Schrad. Journ. Musc. Brit. ed.* 2, *p.* 146, *t.* 23.

In wet situations; common. This varies in the height of the stems and breadth of the leaves.

5. B. *Halleriana*, Hedw. Stems elongated; leaves long subulate flexuose, serrulate; *setæ* shorter than the leaves, curved, at length lateral. *Hedw. St. Cr. v.* 2, *t.* 40. *Musc. Brit. ed.* 2, *p.* 147, *t.* 23.

Crevices of rocks in the mountains. At Colin Glen, near Belfast: not common.

6. B. *arcuata*, Bridel. Stems elongated, proliferous; leaves patent ovato-lanceolate, acuminated, serrated, striated; *setæ* shorter than the leaves, arcuate, at length lateral; capsule smooth. *Brid. Musc. v.* 4, *p.* 139. *Musc. Brit. ed.* 2, *p.* 148, *t.* 23.

In wet spots in the mountains. The fruit at Powerscourt; very rare.

b. Seta lateral.

* *Peristome single.*

28. Pterogonium, *Swartz.*

Seta lateral. *Peristome* single, of 16, entire equidistant teeth. *Calyptra* dimidiate.

1. P. *gracile*, Swartz. Branches fascicled, curved; leaves broadly ovate, acute, concave, their margins plane, serrulate,

faintly 2-nerved; lid conical. *Sw. Musc. Suec. p.* 26. *Musc. Brit. ed.* 2, *p.* 74, *t.* 14.

Rocks, especially those near large bodies of water; not uncommon. The fruit has not been detected in Ireland.

2. P. *filiforme*, SCHWAEGR. Leaves ovate subacuminated, concave their margins recurved, serrated, their nerve short single or forked; lid conical. *Schwaegr. Supp. v.* 2, *p.* 1. *Musc. Brit. ed.* 2, *p.* 75, *t.* 14.

On rather dry rocks in woods and mountains; not uncommon. This, like the preceding, is always barren with us.

29. LEUCODON. *Schwaegr.*

Seta lateral. *Peristome* single, of 32 *teeth* united in pairs. *Calyptra* dimidiate.

1. L. *sciuroides*, SCHW. Leaves closely imbricated, ovato-cordate, acuminated striated; capsule oblong. *Schw. Supp. v.* 2, *p.* 1. *Musc. Brit. ed.* 2, *p.* 112, *t.* 20.

On trees; very rare. This species is given entirely on the authority of Mr. Turner's *Musc. Hib.* in which, however, no locality is stated.

* * *Peristome double.*

A. *Inner peristome of free cilia.*

30. NECKERA, *Hedw.*

Seta lateral. *Peristome* double; the *outer* of 16 *teeth;* the *inner* of 16 free *cilia*, or united by a very short membrane. *Calyptra* dimidiate.

1. N. *pumila*, HEDW. Leaves bifarious, broad, ovato-acuminate, concave, their margins when dry reflexed; *setæ* scarcely exceeding the *perichætia;* capsule oblongo-ovate. *Hedw. St. Cr. v.* 3, *t.* 20. *Musc. Brit. ed.* 2, *p.* 135, *t.* 22.

On trees at Ardtully, near Kenmare. South west of Ireland, *Mr. Wilson*. The leaves are nerveless, or with two short ones at the base, almost entire; the branches are flat; the stem pinnate. The leaves of the Ardtully plant are very broad, concave, with long acuminations, their surface undulate when dry; young shoots round and slender.

2. N. *crispa*, HEDW. Leaves bifarious, oblong, acuminulate, transversely wrinkled; *setæ* much exserted; capsule ovate. *Hedw. Sp. Musc. p.* 206. *Musc. Brit. ed.* 2, *p.* 136, *t.* 22.

On calcareous rocks at Dunkerron; on siliceous rocks in the woods at Killarney; fructifying very rarely, as at Colin Glen, near Belfast. Leaves serrulate; their nerve sometimes extending up half of their length.

31. ANOMODON, *Hook. and Taylor.*

Seta lateral. *Peristome* double; outer of 16 *teeth*, inner of 16 *cilia* alternating with the teeth. *Calyptra* dimidiate.

1. A. *curtipendulum*, HOOK. ET TAYLOR. Leaves ovato-acuminate, denticulate, their nerve not quite percurrent; *setæ*

twice as long as the *perichætium*; capsule ovate. *Musc. Brit. ed.* 1, *p.* 79, *ed.* 2, *p.* 137, *t.* 22.

On stones and trees in the mountains. The fruit at Lough Bray.

2. A. *viticulosum*, HOOK. and TAYLOR. Leaves ovato-lanceolate, obtuse, entire, their nerve percurrent; *setæ* elongated; cylindraceous. *Musc. Brit. ed.* 1, *p.* 80, *ed.* 2, *p.* 138. *t.* 32.

On calcareous rocks or trees in their vicinity; not uncommon. This is extremely unlike the preceding species in habit.

32. DALTONIA. *Hook. and Taylor.*

Seta lateral. *Peristome* double; *outer* of 16 *teeth*; *inner* of 16 *cilia* alternating with the teeth. *Calyptra* campanulate.

1. D. *heteromalla*, HOOK. and TAYLOR. *Musc. Brit. ed.* 1, *p.* 81, *ed.* 2, *p.* 139, *t.* 22.

On trees; common in all parts of Ireland.

B. *Inner peristome of cilia united below by a membrane or by transverse processes.*

33. FONTINALIS. *Linn.*

Seta lateral. *Peristome* double; the *outer* of 16 *teeth*; the *inner* of 16 *cilia* reticulated by transverse processes into a cone.

1. F. *antipyretica*, LINNÆUS. • Leaves nerveless, broadly ovate or ovato-lanceolate. *Linn. sp. pl.* 1571. *Musc. Brit. ed.* 2, *p.* 140, *t.* 22. *F. squamosa*, *Linn. sp. pl p.* 1571.

In rivulets, adhering to wood or stone, The leaves sometimes appear complicato-carinate; on examination this is found to arise from the adherence of the outer edges of adjoining leaves: The habit of this genus is very much of the continental *Gymnostomum aquaticum* of Hoffman. They are more nearly allied than I believe is generally supposed. Upon carefully removing the lid of the *Gymnostomum*, I find the mouth of the capsule coloured of a reddish-brown, crenate, the crenulations corresponding to an outer peristome; within this is an evident inner peristome of sixteen filiform, reddish, erect *cilia* lying upon the *columella*.

34. HOOKERIA, *Smith.*

Seta lateral. *Peristome* double; the *outer* of 16 *teeth*; the inner of 16 cilia united below into a membrane. *Calyptra* campanulate.

1. H. *lucens*, SMITH. Leaves bifarious broadly ovate, entire, obtuse, shining, nerveless. *Sm. in. Tr. Linn. soc. v.* 9, *p.* 276. *Musc. Brit. ed.* 2, *p.* 149, *t.* 27.

Wet banks in woods; common.

2. H. *albicans*, Leaves bifarious, ovate, acuminulate, marginate, subserrulate, with two almost percurrent nerves. *H. læte-virens Musc. Brit. ed.* 1, *p.* 89, *ed.* 2, 149, *t.* 27. *Leskea albicans*, *Hedw. Sp. Musc. t.* 54, *f.* 13—16.

On sides of streams; Dunscombe's wood, near Cork, *Mr. James Drummond.* At O'Sullivan's Cascade and Turk Waterfall, near Killarney, *Mr. W. H. Harvey.* Having seen, since the publication of the second edition of *Musc. Brit.*, states of this plant at Turk Waterfall with the colour quite as pale, the texture of the leaves as thin, their reticulations quite as large, as in Jamaica specimens of Hedwig's plant, assured to me by Dr. Schwaegrichen; and on the other hand, having seen states of the Jamaica moss fully as green as ours, I apprehend it is time to unite them; a step, however, which, I confess, should be taken with great caution, as it bears so remarkably on the geographical distribution of the mosses.

3. H. *splachnoides,* Hooker. Shoots erect, somewhat fastigiate; leaves imbricated on all sides, erect, oblongo-lanceolate, their nerve almost percurrent. *Hook. Eng. Fl. v.* 5, *part* 1, *p.* 74. *Daltonia splachnoides. Musc. Brit. ed.* 1, *p.* 90, *ed.* 2, *p.* 139, *t.* 22.

Secawn mountain, near Dublin. On Turk Mountain, and in Cromaglown, near Killarney, *Mr. W. Wilson.* Tufts small; stems of the past season procumbent, of the present erect, about half an inch in height; the leaves loosely imbricated. *Setæ* usually numerous, closely set in the tuft. *Capsule* with an *apophysis,* reticulated, turbinate, slightly inclined. *Peristome* nearly as long as the capsule; *teeth* of the *exterior* pale, lanceolato-setaceous; the inner united at the base by a membrane scarcely rising above the mouth of the capsule. This species ranges very badly under *Hookeria.* The fastigiate *setæ* remind one of the *Trichostoma.* If the circumstance of a *calyptra* being dimidiate or entire be now allowed by all muscologists to be of sufficient importance to separate *genera,* how much more should the singular *calyptra* of this moss avail? In other *genera* the base of the *calyptra* has a torn appearance, but here it is divided into capillary processes, nearly as long as the *calyptra* above; all equally long, equally broad, pellucid, and without joints or cells. Another singularity consists in the base of the *perichætium,* as in certain of the genus *Fissidens* of Hedwig, throwing out its own rootlets.

35. Hypnum. *Linn.*

Seta lateral. *Peristome* double: the *outer* of 16 teeth; the *inner* of a membrane cut into 16 equal segments, with filiform processes frequently interposed.

I. *Shoots plane.*

A. *Capsules erect.*

1. H. *trichomanoides,* Schreber. Leaves broadly scymitar-shaped, serrated, their nerve reaching to their middle; capsule ovate; erect; lid rostrate. *Schreb. Flor. Lips. p.* 88. *Musc. Brit. ed.* 2, *p.* 152, *t.* 24.

On trees; common.

2. H. *complanatum,* Linnæus. Leaves oblong apiculate, entire, nerveless; capsule ovate, erect; lid rostrate. *Linn. sp. pl. p.* 1588. *Musc. Brit. ed.* 2, *p.* 152, *t.* 24.

On trees; common.

B. *Capsules inclined, or cernuous.*

3. H. *riparium*, LINN. Leaves ovato-lanceolate, acuminated, entire, their nerve not quite percurrent; capsule oblong, cernuous; lid conical. *Linn. sp. pl. p.* 1595. *Musc. Brit. ed.* 2, *p.* 152, *t.* 24.

On stones occasionally inundated.

4. H. *undulatum*, LINN. Leaves ovate, acute, transversely undulate, with two short nerves; capsule oblong. furrowed, arcuato-cernuous; lid rostrate. *Linn. sp. pl. p.* 1589. *Musc. Brit. ed.* 2, *p.* 13, *t.* 24.

In woods ; not uncommon. The very pale, almost white colour of the shoots, and furrowed capsule, remove this in habit from all the other British species.

5. H. *denticulatum*, LINN. Leaves ovate or ovato-lanceolate, subacuminated, with 2 short nerves; capsule oblongo-cylindraceous, inclined; lid conical. *Linn. sp. pl. p.* 1588. *Musc. Brit. ed.* 2, *p.* 153, *t.* 24.

In woods ; not uncommon.

II. *Shoots cylindrical.*

1. *Leaves pointing in all directions (not secund.)*

A. *Leaves uniform in their direction, (not squarrose.)*

a. *Nerve percurrent or excurrent.*

* *Leaves entire.*

6. H. *medium*, DICKSON. Leaves ovate, obtuse, concave, entire, slightly secund, their nerve percurrent; capsule cylindraceous, nearly erect; lid conical. *Dicks. Cr. Fasc.* 2, *p.* 12. *Musc. Brit. ed.* 2, *p.* 154, *t.* 124.

On trees, in moist situations ; not common. The margins of the leaves are recurved ; the *seta* is smooth.

7. H. *tenellum*, DICKS. Leaves fasciculated, lanceolato-subulate; erect, entire, their nerve percurrent; capsule ovate, cernuous; lid rostrate. *Dicks. Cr. Fasc.* 4, *t.* 11, *f.* 12. *Musc. Brit. ed.* 2, *p.* 155, *t.* 24.

On limestone, or on mortar; not uncommon.

8. H. *serpens*, LINN. Leaves ovato-lanceolate, somewhat obtuse, patent, entire, their nerve percurrent, capsule cylindraceous, cernuous; lid conical. *Linn. sp. pl. p.* 1596. *Musc. Brit. ed.* 2, *p.* 155, *t.* 24 (not of *Funcke No.* 49).

9. H. *fluviatile*, SWARTZ. Leaves ovato-acuminate, nearly erect, their nerve quite percurrent, entire, their margins reflexed; capsule cylindraceous, arcuato-cernuous; lid convex, acuminulate. *Swartz. Musc. Suec. p.* 68. *Web. et Mohr. Bot. Tasch. p.* 203. *Hedw. Sp. Musc. p.* 277, *t.* 81, *f.* 4.

On rocks in the river at Ballinhassig, near Cork. Stems procumbent, somewhat cæspitose, from two to three inches long, variously branched, at length denuded. Leaves loosely imbricated, concave, at the tops of the shoots sometimes, but never remarkably secund; their nerve not only percurrent, but running out into a *mucro*, very stout, of a reddish-brown colour; the margins of the leaves can scarcely be said to be reflexed. The *H. fluviatile* of *Funcke's Deutsch. Moose* appears to be *H. serpens.*

* * *Leaves serrated.*

10. H. *populeum*, Hedw. Leaves erect, lanceolate, acuminated, serrated, their margins slightly reflexed, their nerve percurrent; capsule ovate, subcernuous; lid conical. *Hedw. Sp. Musc. t.* 70, *f.* 1—6. *Musc. Brit. ed.* 2, *p.* 157, *t.* 24.

On stones; common.

b. Nerve shorter than the leaf or none.

* *Leaves entire.*

† *Leaves ovate or elliptical.*

11. H. *stramineum*, Dicks. Leaves loosely imbricated, erecto-patent, oblongo-ovate, obtuse, entire, shining, their nerve reaching half way; capsule oblongo-ovate, curvato-cernuous; lid conical. *Dicks. Cr. Fasc.* I. *t.* 1, *f.* 9. *Musc. Brit. ed.* 2, *p.* 160, *t.* 24.

In bogs; common. The fruit very rare; on sandy banks of the river at Castle Kelly Glen, near Dublin. Upon comparing Dr. Wahlenberg's specimens of *H. trifarium* of *Weber* and *Mohr*, I cannot find in them any precise marks of difference from our plant; the leaves vary in both as to compactness of insertion; the lurid colour of the former I find equally deep in some shoots of the latter, having also leaves not more concave on some of the branches.

12. H. *demissum*, Wilson. Stems procumbent, with a few slender branches, leaves erect, subsecund, elliptic-lanceolate, acute, nerveless, entire, their margins recurved; capsule elliptical, arcuato-cernuous; lid rostrate. *Wils. in Eng. Bot. Supp. t.* 2740.

On large stones in the wood at Cromaglown, near Killarney, *Mr. W. Wilson.* In the wood five miles nearer to Kenmare. The tufts of a pale shining yellowish-green; and the slender capsules, with wide mouths, so remarkable in a dried state, render the moss easily recognised. The *setæ* are slender, elongated, and smooth.

13. H. *murale*, Hedw. Leaves nearly erect imbricated oval, concave, acuminulated, their nerve not percurrent; capsule ovate, cernuous; lid rostrate. *Hedw. St. Cr. v.* 4, *t.* 30. *Musc. Brit. ed.* 2, *p.* 161, *t.* 24.

On walls and stones; not uncommon.

14. H. *purum*, Linn. Leaves closely imbricated, oval, acuminulate, very concave, their nerve reaching half way up; cap-

sule ovate, cernuous; lid conical. *Linn. sp. pl. p.* 1594. *Musc. Brit. ed.* 2, *p.* 162, *t.* 24.

On the ground and on hedges; common.

15. H. *piliferum*, SCHREBER. Leaves ovate elongato-acuminate, subserrulate, their nerve disappearing below the middle; capsule cernuous, lid rostrate. *Schreb. Fl. Lips. p.* 91. *Musc. Brit. ed.* 2, *p.* 175, *t.* 25.

Sides of hedges and banks; common. The fruit rare; occurs near Belfast, *Mr. Templeton.*

16. H. *Schreberi*, WILLD. Leaves closely imbricated, nearly erect, elliptical, apiculate, concave, entire, shortly 2-nerved; capsule ovate, cernuous; lid conical. *Willd. Fl. Berol. p.* 325. *Musc. Brit. ed.* 2, *p.* 159, *t.* 24.

Woods, and near bushes; not uncommon.

17. H. *moniliforme*, WAHL. Leaves closely imbricated, rotundato-ovate, obtuse, very concave nerveless; capsule ovate, nearly erect. *Wahl. Fl. Lapp. p.* 376, *t.* 24. *Musc. Brit. ed.* 2, *p.* 159, *t.* 24.

On the ground, Cunnamara mountains, *Mr. J. T. Mackay.*

18. H. *catenulatum*, SCHWAEGR. Leaves subpatent, ovate subacuminate, papillose on the back and margin, their nerve very short; capsule ovate, inclined; lid conical, acuminate. *Schwaegr. Supp. v.* I. *part* 2, *p.* 218. *Musc. Brit. ed.* 2, *p.* 160, *t.* 24.

On wet rocks in woods, especially near waterfalls; at Powerscourt, at the Dargle, and at Turk Waterfall. The stems are very rigid; shoots of a dusky green; leaves remote; the inner peristome has but a single filiform process between its segments.

† † *Leaves lanceolate or subulate.*

+ *Leaves without striæ.*

19. H. *plumosum*, LINN. Leaves erecto-patent, the upper subsecund, ovato-lanceolate, acuminated, subserrated, their margins recurved, their nerve not percurrent; capsule ovate, cernuous; lid conical. *Linn. sp. pl.* 1592. *Musc. Brit. ed.* 2, *p.* 162, *t.* 25.

On rocks and stones, especially in rivers or streams; common. Tufts shining, yellowish-green; the *setæ* smooth.

20. H. *pulchellum*, DICKSON. Leaves loosely imbricated, the upper subsecund, lanceolato-acuminate, entire, nerveless: capsule ovato-cylindrical, nearly erect; lid conical. *Dicks. Cr. Fasc.* 2, *t.* 5, *f.* 6. *Musc. Brit. ed. p.* 163, *t.* 25.

In woods; rather rare. Powerscourt, and at Turk Waterfall.

+ + *Leaves striated.*

21. H. *sericeum*, LINN. Leaves erecto-patent, lanceolate,

acuminate, entire or scarcely subserrulated, their nerve not percurrent; capsule ovato-cylindraceous; *seta* rough; lid conical. *Linn. sp. pl. p.* 1595. *Musc. Brit. ed.* 2, *p.* 165, *t.* 25.

On rocks, walls, and trunks of trees; common.

22. H. *salebrosum*, HOFFM. Leaves erecto-patent, lanceolate, acuminated into a waved hair-like point, subserrulate, their nerve not percurrent; capsule ovate, cernuous; *seta* smooth; lid conico-acuminate. *Hoffm. Fl. Germ. v.* 2, *p.* 74. *Musc. Brit. ed.* 2, *p.* 166, *Supp. t.* 5.

On stones, at Lough Bray. Tufts of a yellowish-green colour; the leaves flaccid, tapering to a very long point.

23. H. *lutescens*, HUDSON. Leaves erecto-patent, lanceolate, acuminated, entire, striated, their nerve not quite percurrent; capsule ovato-cernuous; *seta* rough; lid shortly rostrate. *Huds. Fl. Ang. ed.* 1, *p.* 421. *Musc. Brit. ed.* 2, *p.* 166, *t.* 25.

On trees at Newington, County Kildare; sands of Portmarnock, near Dublin. The inner peristome is allied to that of *Hypnum dendroides*, *Climacium* of *Web.* et *Mohr.*

24. H. *albicans. Necker.* Leaves erect, ovato-lanceolate, acuminated, faintly striated, concave, entire, revolute at the margin, their nerve reaching half way up; capsule ovate, cernuous; *seta* smooth; lid conical. *Neck. Meth. Musc. p.* 180. *Musc. Brit. ed.* 2, *p.* 167, *t.* 25.

On the sands at Portmarnock, near Dublin; not rare.

* * *Leaves serrated.*

† *Stems denuded below. (Tree-like.)*

25. H. *alopecurum*, LINN. Stems erect, unbranched and naked below, branches fascicled above; leaves concave narrow ovate, acute, serrated, reflexed at the margin, the nerve not quite percurrent; capsule ovate cernuous; lid rostrate. *Linn. sp. pl. p.* 1594. *Musc. Brit. ed.* 2, *p.* 168, *t.* 25.

In woods, and on shady banks; common.

26. H. *dendroides*, LINN. Stems erect, unbranched and naked below, branches fascicled above; leaves ovate or ovato-lanceolate, serrated, their nerve not quite percurrent; capsule erect, ovato-cylindraceous; lid rostrate. *Linn. sp. pl. p.* 1593. *Musc. Brit. ed.* 2, *p.* 168, *t.* 25.

On wet banks.

† † *Stems leafy below.*

+ *Capsules erect.*

26. H. *curvatum*, SWARTZ. Branches fascicled, curved; leaves ovato-elliptical, concave, serrated, the nerve not percurrent; capsule ovate, erect; lid rostrate. *Swartz. Musc. Suec. p.* 64. *Musc. Brit. ed.* 2, *p.* 169, *t.* 25.

On trees and rocks; very common.

27. H. *myosuroides*, LINN. Branches fascicled, curved; leaves lanceolate, acuminate, serrated, their margins reflexed at the base, their nerve disappearing near the middle; capsule ovato-cylindraceous, erect; lid rostrate. *Linn. sp. pl. p.* 1596. *Musc. Brit. ed.* 2, *p.* 169, *t.* 25.

On trees and rocks. Usually smaller, yet sometimes fully equalling the former in size.

+ ∴ *Capsules cernuous.*

28. H. *splendens*, HEDW. Stems tripinnate; leaves ovate acuminulate, concave, shortly 2-nerved, their margins recurved below; capsule ovate, cernuous; lid rostrate. *Hedw. Sp. Musc. t.* 67, *f.* 6—9. *Musc. Brit. ed.* 2, *p.* 170, *t.* 25.

In woods, on the ground; not uncommon.

29. H. *proliferum*, LINN. Stems tripinnate; leaves serrated, papillose on the back, the cauline cordate, acuminated with their nerve nearly percurrent, those of the branches ovate with a short single or double nerve; lid conico-rostrate. *Linn. sp. pl. p.* 1590. *Musc. Brit. ed.* 2, *p.* 170, *t.* 25.

In woods, and bushy banks; not uncommon.

30. H. *prælongum*, LINN. Stems pinnate; leaves distant, patent, cordate or ovate acuminate, serrated, their nerve not quite percurrent; capsule ovate, cernuous; *setæ* scabrous; lid rostrate. *Linn. sp. pl. p.* 1591. *Musc. Brit. ed.* 2, *p.* 172, *t.* 25.

On moist shady banks and trunks of trees; common. A variety collected by *Miss Hutchins*, near Bantry, has the leaves yellowish-green, broadly cordate, shortly acuminate. Another, found on dripping rocks at Blackwater bridge, County of Kerry, has leaves narrow, lanceolate, dark dusky-green, and capsules turbinate, and is not one-tenth of the usual size.

31. H. *flagellare*, DICKSON. Stems pinnate; leaves thickly set, cordato-acuminate, serrated, very shortly 2-nerved; capsule oblongo-ovate, cernuous; lid conical. *Dicks. Cr. Fasc.* 2, *p.* 12. *Musc. Brit. ed.* 2, *p.* 174, *t.* 25.

Rocky sides of mountain streams; not uncommon, but rare in fruit, in which state it occurs at Secawn Mountain, near Dublin.

32. H. *micans*, HOOKER. Leaves erecto-patent, rotundato-ovate, acuminulate, concave, serrated, their margin reflexed, shortly 2-nerved. *Wils. Mss. Eng. Fl. v.* 5, *part* 1, *p.* 86.

Woods at Glengariff, *Miss Hutchins*: in the woods at Killarney not uncommon. This appears to me to approach very nearly in habit a slender variety of *H. cupressiforme* found on trees, although when the *lens* is used the difference of acumination of the leaves is easily recognised. It is much smaller in all its parts; and in woods, of a more golden yellow colour, than *H. demissum;* at the base of Magillicuddy's Reeks, it is quite green and looks a doubtful species.

33. H. *abietinum*, LINN. Stems pinnate; leaves papillose on the back, their margins slightly reflexed, their nerve not quite

percurrent, those of the stem ovato-acuminate, striated, those of the branches ovato-lanceolate; capsule cylindraceous, inclined; lid conical. *Linn. sp. pl. p.* 1591. *Musc. Brit. ed.* 2, *p.* 174, *t.* 25.

On the sands at Portmarnock, near Dublin; rare.

34. H. *crassinervium*, MSS. Branches simple, thickly set, erect; leaves patent widely ovate, acuminate, concave, serrated, their margins reflexed, nerved to the middle; capsule ovate, cernuous; seta rough; lid rostrate. *Wils. in Eng. Bot. t.* 2706. *Hook. Eng. Flor. v.* 5, *part* 1, *p.* 88.

On limestone, near Cork, 1820. At Mucruss, near Killarney, in fruit, *Mr. W. Wilson.* Common at Dunkerron. I was induced to give this Hypnum the specific name of *crassinervium*, from the remarkable thickness of the nerve of the leaf, which, as if it were the union of two nerves, is often disposed to bifurcate even half way up the leaf, which I have not observed in others of the genus.

35. H. *rutabulum*, LINN. Leaves patent, ovate, acuminate, serrated, striated, nerved half way; capsule ovate, cernuous; *seta* rough; lid conical. *Linn. sp. pl. p.* 1590. *Musc. Brit. ed.* 2, *p.* 176, *t.* 26.

On banks, stones, and trees; common. A variety occurs on the sands at Portmarnock, near Dublin, with the leaves very broadly cordate and with long acuminated hair-like points, their margins broadly reflexed: perhaps if the fruit were found it might prove a distinct species.

36. H. *velutinum*, LINN. Leaves erecto-patent, ovate, or ovato-lanceolate, acuminate, serrated, striated, nerved half way; capsule ovate, cernuous; *seta* rough; lid rostrate. *Linn. sp. pl. p.* 1595. *Musc. Brit. ed.* 2, *p.* 177, *t.* 26.

On banks, stones, and trees; common. Very nearly allied to the preceding; but of a smaller size, and with narrower, more erect leaves.

37. H. *ruscifolium*, NECKER. Leaves loosely imbricated, subpatent; broadly ovate, acute, serrated, concave, their nerve not quite percurrent; capsule ovate, cernuous; *seta* smooth; lid rostrate. *Neck. Meth. Musc. p.* 181. *Musc. Brit. ed.* 2, *p.* 177, *t.* 26.

On stones, and occasionally immersed in water; common.

38. H. *striatum*, SCHREBER. Leaves patent cordate, acuminate, serrated, striated, nerved more than half way up; capsule oblongo-ovate, cernuous; seta smooth; lid rostrate. *Schreb. Fl. Lips. p.* 91. *Musc. Brit. ed.* 2, *p.* 177, *t.* 26.

Woods, on the ground; common.

39. H. *confertum*, DICKSON. Leaves erecto-patent, ovate acuminate, concave, serrated, nerved half way; capsule ovate, cernuous; seta smooth; lid rostrate. *Dicks. Cr. Fasc.* 4, *t.* 11, *f.* 4. *Musc. Brit. ed.* 2, *p.* 178, *t.* 26.

On stones and trees; common. An *annulus* is present, which Bridel denies, nor does he appear to me more correct in saying of the inner peristome, "ciliis singulis interjectis," for I have found two interposed filiform processes. A variety occurs at Turk Waterfall, and at Blackwater, County of Kerry, with the leaves widely cordate, acuminate.

B. *Leaves squarrose.*

40. H. *cuspidatum*, LINN. Leaves loosely set, of the summit closely imbricated into a cuspidate point; ovate, nerveless, entire; the lower squarrose; capsule oblong, curved, cernuous; lid conical. *Linn. sp. pl. p.* 1595. *Musc. Brit. ed.* 2, *p.* 178, *t.* 26.

On wet banks; not uncommon.

41. H. *cordifolium*, HEDW. Leaves loosely set, squarrose, cordate, much acuminated, entire, nerved more than half way up; capsule oblongo-ovate, curved, cernuous; lid conical. *Hedw. St. Cr. v.* 4, *t.* 37. *Musc. Brit. ed.* 2, *p.* 179, *t.* 26.

In bogs; rather rare. The purple alpine variety grows on Brandon Hill.

42. H. *polymorphum*, HEDW. Leaves loosely set, squarrose, cordate, much acuminated, entire, nerved more than half way up; capsule oblongo-ovate, curved, cernuous; lid conical. *Hedw. Sp. Musc. t.* 66. *Musc. Brit. ed.* 2, *p.* 179, *t.* 26.

In a bog, at Killiney, near Dublin, remote from any limestone.

43. H. *stellatum*, SCHREBER. Leaves loosely set, squarrose, cordate much acuminated, entire, (mostly) nerveless; capsule oblongo-ovate, curved, cernuous; lid conical. *Schreb. Fl. Lips. p.* 92. *Musc. Brit. ed.* 2, *p.* 180, *t.* 26.

In bogs; not uncommon; varying in size.

44. H. *loreum*, LINN. Leaves recurved, squarrose, lanceolate much acuminated, concave, serrated, striated, shortly 2-nerved; capsule ovato-globose; lid hemispherical, apiculated. *Linn. sp. pl. p.* 1593. *Musc. Brit. ed.* 2, *p.* 181, *t.* 26.

In woods, on banks; common. The leaves are frequently subsecund. One of the largest of the *genus;* of a pale yellowish-green.

45. H. *triquetrum*, LINN. Leaves squarrose, cordate acuminated, plane, serrated, faintly striated, 2-nerved at the base; capsule ovato-globose; lid conical. *Linn. sp. pl. p.* 1593. *Musc. Brit. ed.* 2, *p.* 182, *t.* 26.

In woods; common. Still larger than the preceding.

46. H. *brevirostre*, EHRHART. Leaves squarrose, broadly ovate, acuminated from an evident contraction, concave, serrated, shortly 2-nerved; capsule ovate; lid conical. *Ehrh. pl. exsicc. No.* 85. *(according to Bridel). Musc. Brit. ed.* 2, *p.* 182. *Supp. t.* 5.

Woods at Killarney; and at Dunkerron, County of Kerry.

47. H. *squarrosum*, LINN. Leaves squarrose, widely cordate, very much acuminated, recurved, serrated, shortly 2-nerved; capsule ovato-globose, cernuous; lid conical. *Linn. sp. pl. p.* 1593. *Musc. Brit. ed.* 2, *p.* 182, *t.* 26.

Woods and heaths; common.

2. *Leaves secund.*

A. *Leaves with a single nerve.*

48. H. *filicinum*, LINN. Branches pinnate; leaves especially the upper falcato-secund, broadly ovate, acuminate, serrated, their nerve percurrent; capsule oblongo-ovate, curved, cernuous; lid conical. *Linn. sp. pl. p.* 1590. *Musc. Brit. ed.* 2, *p.* 183, *t.* 26.

On moist banks and wet sides of rivulets; common. A variety at Blackwater bridge has the leaves scarcely serrulated.

49. H. *palustre*, LINN. Leaves secund, ovate, somewhat acuminate, concave, entire, their margins incurved above, their nerve short, sometimes forked; capsule oblongo-ovate, cernuous; lid conical. *Linn. sp. pl. p.* 1593. *Musc. Brit. ed.* 2, *p.* 185, *t.* 26.

On wet rocks in streams; common. Varies by the direction and acumination of the leaves, by their colour, by the length of their nerve, by the degree of incurvation of the capsule, by the length of the lid, by a slight roughness of the *setæ*, and by the length and colour of the shoots.

50. H. *fluitans*, LINN. Leaves loosely imbricated, the upper falcato-secund, lanceolato-subulate, subserrulate, their nerve not quite percurrent; capsule ovato-oblong, curved, cernuous; lid conical. *Linn. Fl. Suec. ed.* 2, *p.* 399. *Musc. Brit. ed.* 2, *p.* 185, *t.* 24.

In pools of clean water; not uncommon; fruit rare.

51. H. *aduncum*, LINN. Leaves falcato-secund, lanceolato-subulate, concave, entire, their nerve not quite percurrent; capsule oblongo-ovate, curved, cernuous; lid conical. *Linn. sp. pl. p.* 1592. *Musc. Brit. ed.* 2, *p.* 186, *t.* 26.

On bogs; common. The leaves are sometimes ovato-lanceolate, less secund, and somewhat rugose; and again, when of a purplish red colour, very narrow, long and much falcate; this variety has been called *H. revolvens* by authors.

52. H. *uncinatum*, HEDW. Leaves falcato-secund, lanceolato-subulate, serrated, striated, their nerve not quite percurrent; capsule cylindrical, curved, cernuous; lid conical. *Hedw. St. Cr. v.* 4, *t.* 5. *Musc. Brit. ed.* 2, *p.* 187, *t.* 26.

On stones at the side of Lough Bray, near Dublin; very rare.

53. H. *commutatum*, HEDW. Stems pinnated; leaves falcato-secund cordate elongato-acuminate, serrated, their margins reflexed, their nerve not quite percurrent capsule oblong, curved,

cernuous; lid conical. *Hedw. St. Cr. v.* 4, *t.* 26. *Musc. Brit. ed.* 2, *p.* 188, *t.* 27.

On dripping sides of banks; common: not peculiar to limestone. It is among the unexplained phenomena of nature by what powers of organization, this plant, as well as *Weissia verticillata*, *H. ruscifolium*, and others, are capable of covering their stems with an incrustation of carbonate of lime, not observed on other species growing in contact with them, and in situations where the presence of lime in the subjacent or surrounding rocks, soil, or waters, cannot be traced or indeed suspected.

B. *Leaves nerveless, or very shortly 2-nerved.*

54. H. *scorpioides*, Linn. Leaves secund, broadly ovate, ventricose, obtuse, somewhat apiculate, entire, nerveless or shortly 2-nerved; capsule oblongo-ovate, curved, cernuous; lid conical. *Linn. sp. pl. p.* 1592. *Musc. Brit. ed.* 2, *p.* 188, *t.* 27.

On bogs; at Howth, Dunkerron, &c.; not uncommon.

55. H. *cupressiforme*, Linn. Leaves falcato-secund, ovato-lanceolate acuminated, serrulate, shortly 2-nerved; capsule cylindrical erecto-cernuous; lid conical, shortly apiculate. *Linn. sp. pl. p.* 1592. *Musc. Brit. ed.* 2, *p.* 189, *t.* 27. (*except var.* γ.)

On stones and trees; very common. Varies in size; the fine stemmed var. found on trees, as at Glengariff, by Miss Hutchins, being the most remarkable.

56. H. *multiflorum*. Leaves lanceolate, elongato-acuminate, secund, entire, nerveless; capsule cylindrical, nearly erect; lid rostrate. *H. polyanthos, Eng. Bot. t.* 1664. (*not Leskea polyantha. Hedw.*) *H. cupressiforme Musc. Brit. ed.* 2, *p.* 190, *var.* γ. *tenue.*

On stones and trees; very common. Equally common with the preceding, bearing greater exposure, often growing intermixed with it, yet never exhibiting intermediate characters. In *H. cupressiforme*, if the procumbent stems be viewed from above, the bases of the leaves seem set in a bifarious manner, while their falcate summits all point downwards; in *H. multiflorum* there is no such flattening of the stem caused by the insertion of the leaves, and their apices, which are never falcate, point upwards. Still surer marks of the latter are found in the narrower and perfectly entire leaves, the rostrate lid, the capsule more erect, and its mouth much narrower.

57. H. *molluscum*, Hedw. Stems pinnate; leaves falcato-secund, cordate much acuminated, serrated, scarcely striated, shortly 2-nerved; capsule oblongo-ovate, cernuous; lid conical apiculate. *Hedw. St. Cr. v.* 4, *t.* 22. *Musc. Brit. ed.* 2, *p.* 191, *t.* 27.

On the ground and on stones; common. This is at once distinguished from the preceding, or, indeed, from all the preceding, by its *hirsute calyptra*, except *H. sericeum*, in its young state, as observed by Mr. Wilson.

ORDER III.

HEPATICÆ. *Juss.*

The approach of the *Musci* to phanerogamous plants by the almost woody nature of the *setæ*, and by the presence of nerves to the leaves, is entirely lost in the *Hepaticæ*. These are softer and more cellulose in their structure; their seed vessels are more simplified, being destitute of lids, and consequently of peristomes, and their seeds have not yet been observed attached to particular points of the capsules. The *Calyptra* seems to act a most important part different in function from the organ so called in the preceding order. The *Calyptra* of the *Musci* ruptured at its base rises on the summit of the rudiment of the young capsule and retains its position, organically unconnected, until the full growth of the latter and maturity of the seeds, and appears during this entire period no more than a protection. In the *Hepaticæ*, on the contrary, the *Calyptra* attains its full size in the form of a globe usually, containing a thick liquid, in the centre of which a minute speck, the future capsule is observable for many months previous to its expansion. During this slow evolution, the capsule seems to increase at the expense of the fluid contents of the *Calyptra*, so that this at maturity is reduced to a most delicately thin membrane, finally bursting irregularly to give exit to the capsule, or as in the foreign genus *Fimbriaria* to allow the seeds of the ruptured capsule to escape.

TABLE OF THE GENERA.

† *Seeds accompanied by spiral filaments in the capsule.*

A. *Common Receptacle of the capsules pedunculated.*

1. MARCHANTIA. *Male Recept.* pedunculated, scaly beneath: *Loculi* of the *Fem. Recept.* 2-valved; *capsules* with *calyces; Calyptra* remaining within the *calyx.*

2. FEGATELLA. *Male Recept.* sessile. *Loculi* of the *Fem. Recept.* 1-valved. *Capsules* without *calyces. Calyptra* remaining within the *loculus.*

3. LUNULARIA. *Male Recept.* sessile. *Fem. Recept.* deeply divided into taper, 1-valved, *loculi. Capsules* without *calyces,* 4-valved, exserted.

4. HYGROPHILA. *Male Recept.* pedunculated, hirsute. *Fem. Recept.* hirsute. *Capsules* without *calyces. Loculi,* 1-valved, carnose.

B. *Common Female Receptacle none.*

5. TARGIONIA. Male Receptacle in a bivalved *loculus,* sessile. *Common Fem. Receptacle none.* Capsule in a sessile, terminal, bivalved *loculus. Calyx* none.

6. JUNGERMANNIA. *Common Fem. Receptacle* none. *Capsule* 4-valved, exserted on a succulent, somewhat pellucid pedicell.

† † *Seeds unaccompanied by spiral filaments.*

7. ANTHOCEROS. *Male flowers* aggregate immersed in the frond. *Capsule* linear, 2-valved, having a central filament, and arising out of a tubular prolongation of the superior membrane of the frond.

8. RICCIA. *Capsule,* with its exterior membrane *calyptriform,* bearing a style, its interior enclosing numerous subangular seeds with pellucid coats. *Style* protruded above the frond.

1. MARCHANTIA. *Marchant.*

Male Receptacle pedunculated, scaly beneath. *Female Receptacle* with *loculi* 1—3-flowered, bivalved; capsules with calyces. Calyptra bursting, at length remaining within the *calyx.*

1. M. *polymorpha*, MARCHANT. Female Receptacle deeply incised in a radiating manner; the segments linear; the margins of the *loculi* ciliated. *Marchant fil. in Acta Gall. an.* 1713. *Linn. sp. pl.* 1603. *Micheli Gen. t.* 1, *f.* 1, 2, 5. *Dill. Musc. t.* 76 *and t.* 77, *f.* 7. *Schmidel Ic. t.* 9 *and t.* 29. *Hedw. Theor. ed.* 2, *t.* 26, 27, *f.* 1, 2. *Eng. Bot. t.* 100. *Musc. Brit. ed.* 2, *p.* 219. *Sprengel Syst.* IV. *p.* 234. *Lindenberg Syn. Hep. Europ. p.* 100.

In dry as well as wet situations; very common, not only in Ireland but in most parts of the globe. Flowering in summer and autumn. The openings of the pores on the frond are thickened or marginate. There are three distinct series of scales beneath the froud, the one broadly ovate or lanceolate, scariose, whitish, disposed in a pinnate manner at each side of the axis; others alternate with these, but are exterior, oblong, obtuse, exceeding a little the margins of the frond; finally, others of a deep purple colour, oblong, alternate, closely imbricated, their margins only colourless, forming a ridge over the nerve. The capsules, towards maturity, appear yellow, and have been so described by Mohr and Lindenberg, but the colour is that of the seeds, seen through their pellucid coat. The capsule is not toothed, but bursts irregularly. The seeds at length assume a dark olive colour. The *Scyphi* are toothed, each tooth terminated by a single dark *cilium*, which at first is introflexed, then erect, and finally falls of. At the bottoms of the *Scyphi*, in a gelatinous substance, are imbedded buds, flattish, lenticular, slightly lobed. The *Male Receptacle* is rugged above, its margin nearly entire, or more commonly lobed; I have seen it as deeply incised as in *M. chenopoda (Dill. t.* 77. *f.* 8.) At the inferior surface the convex rays are scaly, and among the scales are inserted clustered simple fibres, not to be distinguished from the roots below the frond. The scales are ovate, obtuse, purplish at their bases, colourless at their tops. At the summits and back part of the peduncles there remain adhering from ten to twelve cellulose, linear processes which are the interior portions of the *indusuim.* Both male and female receptacles, when they first appear between the terminating lobes of the frond, are covered with *indusia;* of which, however, contrary to what occurs in certain foreign species, scarcely a trace is to be seen when the peduncles have been fully formed. Each peduncle anteriorly has two grooves, in which are enclosed bundles of fibres not distinguishable from the roots. From the rapid growth of the peduncles we may conclude these bands of fibres existed previous to their exaltation: accordingly, before this event, they are to be found in a canal along the nerve below the frond. These roots probably supply moisture to the receptacle, which encreases in size after its elevation, the enclosing grooves of the peduncle preventing evaporation. Such an admirable provision is found in the other *Marchantieæ.*

2. M. *androgyna*, LINN. Female Receptacle nearly entire, subhemispherical, somewhat quadrangular; the margins of the

loculi, entire, undulate. *Linn. sp. pl. ed.* 1780, *p.* 1605. *Eng. Bot. t.* 2545 *(exclusive of the two lower figures). Smith in Rees' Cyclop. Dicks. Cr. Fasc.* II. *p.* 17. *Withering's Bot. Arr. v.* 3, *p.* 868. *M. quadrata, Scopol. Carniol. t.* 63, 1356. *M. triandra, Scop. Carn. t.* 63, 1355. *(according to Mohr.) M. hemispherica Linn. Fl. Suec. n.* 1052. *Fl. Lapp. n.* 424. *Wahl. Fl. Lapp. p.* 398. *Schmid. Ic. t.* 34. *Weber et Mohr, Cr. Germ. p.* 388. *M. commutata, Lindenb. Syn. Hep. Europ. p.* 101.

On rocky sides of shaded rivers, also in wet spots of the mountains, reaching fifteen hundred feet above the level of the sea. Flowers at Dunkerron, County of Kerry, during spring, summer, and autumn. Frond from one to three inches long, oblong, sinuate, at the top bilobed, (as in all this natural order); the margins crenate, depressed, often purplish and scariose; the openings of the pores thickened or marginate. The scales beneath (observable in young fronds) dark purple, oblong, scymitar shaped, imbricated about the buds. The *indusium* rotundate, depressed, its scales multifid, and their *laciniæ* linear, articulate, purplish. *Female Receptacle* pedunculate, often with four indistinct angles, above having four obtuse ribs. *Loculi* usually four, yet one or two often abortive and collapsed; of the fertile the margins are at first much plicate, and even after expansion undulate. *Calyces* often two or three, reticulated, rotund, toothed. *Calyptra* rotundate, bearing a style. *Capsule* globose, shortly pedicellated. *Seeds* submuricate, rotundato-tetrahedrous, dark brown: the *filaments* with a double spiral line. The peduncle one to two inches high, reddish below, pale green above, with two grooves containing bundles of fibres as in the preceding. Specimens are not very uncommon in which the peduncle is truly androgynous, i. e. a part of the receptacle bearing capsules below, the rest bearing anthers on its superior surface. The *male receptacle* is pedunculated, its margin elevated, entire, scariose. The *loculi* of the *anthers* are disposed in a radiating manner. The *anthers* are oblong. This plant, well described by Schmidel and Wahlenberg under another name, seems to have been unknown to Micheli, Dillenius, and Haller.

2. FEGATELLA. *Cæsalpinus. Raddi.*

Male Receptacle sessile in a pit of the frond; *Female Receptacle* covering the *loculi; Loculi* 4—5, opening with a vertical fissure; *Calyces* none; *Calyptra* at length bursting and remaining in the *loculus.*

It may be doubted whether by *Fegatella* Cæsalpinus understood this species or *Marchantia polymorpha. Scyphi* containing *gemmæ* or buds never occur in this genus. While the *Marchantiæ* flower throughout the spring, summer, and autumn, the *Fegateliæ* exhibit their organs of fructification only early in the spring, and then for a short period in Ireland. The pores of the fronds never have their openings thickened or marginate as in *Marchantia;* and the peduncles have but a single groove, never two, as in the latter.

1. F. *conica*, Female Receptacle conical, narrowed and obtuse at the top; the capsules at length exserted. *Marchantia conica, Linn. sp. pl. p.* 1604. *Eng. Bot. t.* 504. *Musc. Brit. ed.* 2,

p. 221. *Michel. Gen. pl. t.* 2, *f.* 1. *Dillen. Musc. t.* 75, *f.* 1. *Schmidel Icones, t.* 31. *Hedw. Theor. ed.* 2, *t.* 28. *Fegatella officinalis, Raddi in Op. Scient. di Bologna,* II. 356.

In wet and shaded situations, at low elevations; common. Flowering at Dunkerron, County of Kerry, in February and March. *Fronds* sometimes six to eight inches long, especially the barren, their margins crenate, undulate. *Buds* appear in winter, between the terminating lobes, their margins involute, the entire ascending, recurved, at length opening into shining light-green fronds. The *scales* beneath are subrotund, oblique, slightly emarginate. The *Male Receptacle* is hœmispherical and smooth below, nearly flat above, immersed in a cavity of the frond, but not adhering to it except by a central point at the bottom: the upper surface is rough, with conical elevations, the tops of whitish *antheriferous vesicles;* the *anthers* are lineari-oblong, coming to maturity the summer previous to the ripening of the seeds. *Female Receptacles* fully formed in October remain sessile on the fronds until the following February, when at length the peduncle rises; but I have observed where, during the winter, the seeds were devoured by insects, the elevation of the peduncle never took place. *Loculi* one to nine; one-flowered, very rarely two-flowered. No calyx is present; a horizontal section of the receptacle may cause the inner membrane of the *loculus* to be so separated as to assume the appearance of one; but this is deceptive, as is the inferior portion of the *calyptra* remaining about the base of the full-grown capsule. The *calyptra* is oblong, bursting at the top into *laciniæ.* The *capsule* also is oblong, its ruptured segments at length revolute. The seeds nearly round, greenish, at length smooth, dark brown: the filaments enclosing two spiral lines. The peduncles subangulate, below thicker, and slightly purplish, above pellucid with the faintest tinge of green, having a single groove containing a bundle of fibres similar to the rootlets; fibres of the same nature are also found at the base of the receptacle, where it is joined to the peduncle. The *indusium* of the young receptacle is rather flat, consisting of a few round or lunulate scales, folded back upon the margin of the frond, between its terminating lobes; it is not to be recognised after the elongation of the peduncle.

2. F. *hemispherica,* Female Receptacle subhemispherical, cut at the margin into 4—6 lobes; the capsules sessile (not exserted). *Marchantia hemispherica, Linn. sp. pl.* 1604. *Sprengel Syst. v.* 4, *p.* 234. *Micheli Gen. pl. t.* 2, *f.* 2. *Dillen, Hist. t.* 75, *f.* 2. *Rebouillia hemispherica, Raddi in Opusc. Scient. di Bolonga* II. 357. *Grimmaldia hemispherica, Lindenberg Syn. Hep. Europ. p.* 106.

On a calcareous soil chiefly; on banks rather dry. Flowers at Dunkerron, County of Kerry, in March and April. *Fronds* one or two inches long, slender, broader at the top; their margins crenulate, raised, scariose, brownish-purple; their *pores* formed of a whitish cuticle raised, with an irregular opening at the top, whose edges are not thickened. Beneath, besides the whitish simple *rootlets* along the axis, there are purplish, flat, imbricated *scales* placed in a pinnate manner on each side of the nerve; they are roundish, broader at the base, and terminating in two acuminated teeth. There are no *scyphi,* yet Micheli figures them: this can only be explained by supposing that he delineated from specimens intermixed with *Lunularia vulgaris*, an association extremely common. The *male receptacles* are generally on distinct plants, and are of a dusky purple, roundish, marginated, flattish above, sessile, immersed in the frond, and, as in the preceding, not adherent but by a point at their bases. On the upper surface appear dark purple elevations, with a minute aperture on the summit, out of which the milky *pollen* exudes. The *female receptacles* at first roundish, then hemispherical, again assume a rounded form, from the swelling of the capsules beneath; they are divided into from four to six lobes, each covering a *loculus*, which opens with a vertical fissure. The *loculi* are two-valved, each valve involute at the margin. *Capsules* solitary, sometimes two in a *loculus*, whose extremity they never pass, being scarcely furnished with pedicells as in the preceding. The *calyptra* bearing a style at length bursts, remaining within the *loculus*. After the most diligent search of numerous specimens I could never find any *calyces*, organs that form an important part of the character of the genus *Grimmaldia* of Raddi and Lindenberg, constructed on this plant. The *seeds* at first appear as globules, surrounded by a pellucid *annulus*; in ten or fifteen days the globules are divided into three equal parts by pellucid lines; if either of these sub-divisions be forcibly pressed, it bursts into numerous minute dark points, which, perhaps, future observations may prove to be the true seeds. I have found a similar structure in all the *Marchantieæ*, in *Targionia*, and several *Jungermanniæ*, especially the frondose. But what at present are termed seeds are at first yellow, afterwards of a dusky olive, triquetro-subrotundate, girt with a pellucid ring. The filaments enclose two dark spiral lines. The exterior scales of the *indusium* are broad, deeply incised, the interior linear, longer, all of them whitish, reticulated, before the rising of the peduncle enveloping the female receptacle, but after that event the interior are raised with the base of the receptacle, and remain adherent to the points of its junction with the peduncle; hence its pilose appearance. A few of the scales, here and there, stick to the peduncle.

3. LUNULARIA. *Micheli.*

Male Receptacle sessile, with a membranaceous elevated margin. Female Receptacle deeply divided into narrow taper *loculi*: *Loculi* opening with a *horizontal* fissure: *Calyces* none: *Capsule* 4-valved, exserted.

1. L. *vulgaris; Micheli Nov. Gen.* 4, *t.* 4. *Raddi in Opusc. Scient. di Bologna*, 2, 355. *Marchantia cruciata, Linn. sp. pl.* 1604. *Haller St. Helv. ed.* 1768, *tom.* 3, *p.* 65, *No.* 1888. *Huds. Fl. Ang. p.* 52, *With. Syst. Arr. ed.* 1801, *vol.* 3, *p.* 869. *Dillen. Musc. t.* 75, *f.* 5.

On dry banks, principally in limestone districts; common. Flowering at Dunkerron, County of Kerry, in August. Fronds densely gregarious, one to two inches in length; in green-houses, however, from three to four inches; of a light green, shining, oblong, broader at the top, divided into three or four lobes, of which the lateral are the shorter, and at the end of their *sinuses* the fruit is borne. The margins of the fronds are waved and elevated; the *pores* are analogous to those of the genus *Fegatella*, not *Marchantia*. Besides rootlets, as in the other *Marchantieæ*, on the under surface are found scales whitish, scariose, scymitar-shaped, stretching across from the *axis* nearly to the margins; such, however, are obsolete in aged fronds. *Male receptacle* sessile, only immersed in the frond, but not adhering to it, except by a point at the base, situated at the top of the *sinuses*, oblong, concave above, the margin raised, scariose, undulate; the upper surface has minute elevations open at their tops, out of which a viscid liquor flows, found to be originally contained in ovate immersed *anthers*. The anthers perform their functions in winter. The *female receptacle*, which is found only in the summer, is at first covered with the *indusium*, and is nearly globular, but oblong at the period when the peduncle is about to rise; when risen from its central disc, tubulose processes are elongated—these are the *loculi*, varying in number, usually four, whence the cruciform appearance long ago noticed. The *loculi*, contrary to what occurs in *Fegatella*, open by a horizontal fissure. The young *indusia* are found at the deepest recess of the lateral *sinuses* of the frond, and whose margins are so little separated that the fructification appears to be *epiphyllous*, or seated on the surface of the frond, as Dillenius figured it, and after him Sprengel and other authors have described. This, however, never occurs in the *Marchantieæ*. The young *indusium* is found in a cavity partially covered behind by a projecting portion of the frond. Its exterior scales, six or more, are broadly ovate, very concave, very obtuse, entire, reticulated, whitish; intermediate ones are split at the tops, while the innermost are linear, jointed, many of them adhering to the lower part of the peduncle. The *peduncle* is succulent, white, pellucid. Fertile *loculi* from one to six, but four is the commoner number; they are tubulose, whitish, pellucid, one—, more rarely two-flowered. *Calyx* none. *Calyptra* spherical, bearing a style, at length ruptured, and remaining in the bottom of the *loculus*. The *capsule* is oval, blackish, longer than in the other *genera* of the *Marchantieæ*, with a considerable pellucid pedicell as in *Jungermmannia*. The capsule is four-valved, and the valves often bifid. The *seeds* are numerous, dusky, minute, sub-rotund, mixed with filaments, marked with a double spiral line. The *scyphi* occur on male, female, or neuter fronds, at all seasons of the year; they are lunulate, whence the generic name. In the bottoms of the *scyphi*, among gelatinous and cellulose matter, occur lentiform bodies, slightly lobed, from the bottom of the sinus connected to the cellulose portion by a filiform process. These are plainly buds, as their axillary situation would indicate, and their expansion into perfect fronds proves. The *peduncle* of the female receptacle has a single groove; it is less substantial than in the *congeners*, and decays in a very few days, which, I suppose, is one reason of the fruit being rarely observed. I have succeeded in causing plants, brought from a distance of several miles, to bear perfect fruit under glasses at Dunkerron. This species is constantly dioicous, although Micheli's figure represents it otherwise.

4. Hygrophila.

Male Receptacle pedunculated, hirsute, with short scattered hairs. *Female Receptacle* pedunculated, hirsute with short scattered hairs. *Calyx* none. *Loculi* univalved, carnose, opening at the top with a vertical short fissure. (Frond without pores.)

1. H. *irrigua.* The female receptacle, somewhat plane above, scaly beneath. *Marchantia irrigua Wilson. Hooker's Eng. Flor. v.* 5, *part* 1, *p.* 106.

In warm rocky recesses in the sides of streams in shaded situations at Blackwater Bridge, near Dunkerron, 1820. At Turk cascade near Killarney; Maghanabo Glen, near Brandon Mountain; and at Ballinhassig Glen, near Cork, *Mr. W. Wilson,* who first published it in the English Flora. At Altadore, County of Wicklow, Mr. G. S. Gough. Fronds from 1 to 5 inches long, nearly an inch wide, procumbent, membranaceous, bilobed, the margins of the lobes raised, slightly undulate, roundish. The frond is of a lively green, pellucid, without pores, (but apparently in their place) there occur on the lower as well as upper surface branches from the great central and longitudinal nerve, which after running for a short space nearly parallel with the nerve, diverge and branch and form *anastomoses.* This is scarcely to be observed in dried specimens. As pores are wanting, in this genus of the Marchantieæ, on the upper surface, so likewise no scales are observable on the inferior. Below, the usual whitish simple, jointless rootlets are thickly set along the nerve. There are no *scyphi* but as in *Fegatella* the buds issue as flat discs of a lighter green from between the terminating lobes of the frond. The fructification is commonly dioicous, sometimes monoicous and not very rarely androgynous as observed in *Marchantia androgyna.* In this last case the anthers appear effæte and to have discharged their pollen long before the maturity of the seeds. The *male Receptacle* is flat above, granulated, circular, with a depressed centre, hemispherical beneath, carnose, greenish, at length dusky, near the margins especially beset with short straight, rigid, whitish hairs. On the upper surface the ovate erect *anthers* open, and if squeezed, exude minute oleaginous globules. At the junction of the peduncle to the receptacle a few linear scales of the *indusium* remain adhering; the peduncle seldom exceeds a diameter of the receptacle in length; it is succulent, pellucid, greenish below, dusky above with *two* grooves containing bundles of fibres like the rootlets as in *Marchantia.* The *female Receptacle* is at first quite covered by the recurved scales of the *indusium,* and infertile receptacles may be seen in this state at all seasons. The fertile alone are upraised on peduncles and are far larger, with a convex rugged surface above, their margins elevated, divided beneath into oblong convex, carnose *loculi,* beset with short, straight, rigid whitish bristles. The *loculi* open by a short vertical fissure. The *capsule* which within the *calyptra* takes 6 or 8 months for its full development, at length globose supported on a short pellucid pedicell protrudes to light, bursts by 4—6 unequal *laciniæ,* leaving the ruptured remains of the *calyptra* in the *loculus;* but no *calyx* exists. The *seeds* are angulato-rotundate, dark brown. The spiral filaments elongated, slender, but little twisted, marked minutely with a double *helix.* The peduncle of the female receptacle has two grooves containing rootlets, is succulent, greenish, semipellucid, curved, to its summit remains of the *indusium* adhere. The odour of this plant is strong and very agreeable, and has adhered to blotting paper for upwards of two years, being emitted by the application of heat, but not quite expelled.

5. TARGIONIA, *Micheli.*

Male Receptacle in a bivalved terminal *loculus,* sessile: *Common*

Female Receptacle none. Capsule in a sessile terminal bivalved *loculus*. *Calyx* none.

1. T. *hypophylla, Linn. sp. pl. p.* 1603. *Web. et Mohr. Cr. Germ. p.* 391, *t.* 12. *Eng. Bot. t.* 287. *Raddi in Opusc. Scient. di Bologna* II. 359. *Spreng. Syst.* IV. *p.* 235. *Musc. Brit. ed.* 2, *p.* 218. *Lindenb. Syn. Hep. Europ. p.* 110. *Micheli, Nov. Gen.* 3, *t.* 3. *Dill. Hist. Musc. t.* 78, *f.* 9.

On the Cave Hill, near Belfast, *Mr. Templeton.* Fronds in imbricated patches, 1 to 1½ inch long, one-tenth broad, lineari-obovate, concave, their margins purplish black, minutely undulate, nearly entire, their substance thicker towards the middle, thin at the edges ; of a dull green ; the pores are minute flattish-conical white elevations of the cuticle with an irregular but roundish aperture at the top, which is not marginate. Beneath, along the midrib are numerous whitish, simple, filiform rootlets, and as in the other *Marchantieæ,* not jointed but marked with numerous closely set most minute dark dots. On each side of the midrib are purplish, reticulated lunulate scales which are sometimes acuminated, imbricated towards the top and one or two even on the *loculus. Male Receptacles,* which perhaps have been hitherto unobserved, are situated at the extremities of very narrow rather short fronds, whose edges are involute, and are altogether similar to the *loculus* of the capsules but smaller, at the base of this the receptacle is sessile, surrounded by numerous short white filaments and consisting of a carnose disc of a pale colour in which the *anthers* are imbedded. The *anthers* are oblong spheroids, a little narrower at one end, closely packed together, consisting of a smooth tegument and containing a pale brown fluid. The *loculus* of the capsule is globular, dark purple, shining, opening by two marginate valves vertically, opaque, closely reticulated, its pedicell short, succulent, pellucid, bursting irregularly at the top and discharging within the *loculus seeds,* which are subrotund muricated, rather large and brown, as well as filaments about four diameters of the seeds in length, dark brown, swollen in the middle and marked with a single spiral thread, which, however, is crossed spirally by numerous much finer and more close dark lines. The *calyptra* becomes ruptured horizontally, the portion remaining fixed to the *loculus* is thin, reticulated and purplish ; the upper portion to which the *style* is fixed fugacious.

6. JUNGERMANNIA, *Linn.*

Common Female Receptacle none. *Capsule* 4-valved, exserted on a succulent, somewhat pellucid pedicell, and containing seeds and spirally marked filaments.

1. *Frondose.*

1. J. *calycina. Frond* lineari-oblong, the margins elevated, sinuose, undulated, *fruit* on the upper surface of the frond over the midrib, the *calyx* tumid, broadly ovate, subplicate, fringed at the mouth ; *calyptra* included in the calyx.

On shaded wet banks and in fields lately cropped, very common. Flowering at Dunkerron, County of Kerry, in February and March. This species is so like *Jung. epiphylla* that it appears hitherto to have been confounded with it ; the only advance towards their separation having been made by Dr. Hooker. The var. γ. *furcigera* of his *J. epiphylla Brit. Jung. t.* 47, is a state of our plant as it buds in autumn: he says, "those curious processes are in all probability destined by nature as a means of increasing the species, different from any that has been noticed in any other Jungermanniæ." We may now add, and quite different from the annual buds of *J. epiphylla*. By the following marks the two species may be clearly distinguished. In *J. calycina* the *fronds* are concave, their edges raised, their midrib broad and well marked: the *calyx* large, tumid, subplicate, the *calyptra* remaining in the calyx, whereas in *J. epiphylla* it is always much exserted; the *spiral filaments* are bent, not twisted as in the latter; the *seeds* are longer. The male flowers are very like in the two species, but are fewer and more scattered in *J. calycina*. The capsules before dehiscence are of a light green colour, and after dissemination the valves are paler than in *J. epiphylla*. The immature seeds show a ternate aggregation. This species often assumes a glaucous-blueish appearance when it grows where water trickles, and never exhibits a brownish-purple tinge over the midrib as does *J. epiphylla*.

2. J. *epiphylla*, LINN. Frond oblong, rather broadly lobed and sinuated, fruit from the upper side of the frond and near the apex; calyx at first procumbent, anteriorly its cavity formed of the frond, its mouth inciso-dentate; the calyptra exserted. *Linn. sp. pl. p.* 1602. *Hook. Br. Jung. t.* 47, *varieties α and β*.

On wet banks, common. Hollow subulate slightly curved, pale bodies are sometimes found rising from the surface of the frond as in *Jung. Blasia*, but I could never find any contents. The bud appears as a minute scale between the lobes at the top of the *sinus*, and afterwards expands into a lobed frond, and so the species is prolonged.

3. J. *Blasia*, HOOK. Frond oblong, dichotomous, nerved, with scattered dentate scales beneath; the fruit arising from the upper surface over the nerve, *calyptra* scarcely exserted. *Hook. Brit. Jung. t.* 82, 83, 84.

On sandy banks occasionally inundated; rather rare. Fruit at Castle Kelly Mountain, on the banks of the stream, in March.

4. J. *furcata*, LINN. Frond linear, dichotomous, nerved, glabrous above, beneath and on the margin subpilose, fruit from the midrib on the under side; calyx 2-lobed, the margin ciliated; calyptra obovate, hispid. *Linn. sp. pl. p.* 1602. *Hook. Br. Jung. t.* 55, 56.

On trunks of trees, also loosely cæspitose on banks in woods; common.

5. J. *pubescens*, SCHRANK. Frond linear, subdichotomous, nerved, pubescent on both sides; calyces at the extremities of short lateral branches, cylindraceo-obovate, pubescent; capsule cylindraceous, bivalved at the top. *Schrank. prim. fl. Salisb. p.* 231, *Hook. Br. Jung. t.* 73.

On mountains near Belfast, *Mr. Templeton* I have never seen this plant in Ireland, and give it on the authority of a small specimen from Mr. Templeton. The fruit, hitherto unknown, occurs on plants I have from Mr. Dickson, who gave as his authority, Mr. Menzies and Cape

Horn for the locality. The maturity is not so forward as to show capsules protruded out of the *calyces*, yet whether this ever takes place may be doubted, as the capsules were so ripe as to show two pedicellated bundles of spiral filaments on each valve, standing nearly erect; the seeds brown angulato-subrotund, unconnected by any fluid matter, and hence readily separating and falling out; the spiral filaments long much twisted. Upon careful examination I found the capsule had only *two* valves or rather lips at the summit, and was quite entire below without any mark of a suture. Thus this plant seems to propose pretensions to a separation from *Jungermannia*, yet *Monoclea*, which would approximate it in our artificial systems, would be as far from allowing its alliance, nearly as the *frondose Jungermanniæ* are separated from the *foliaceous*.

6. J. *pinguis*, LINN. Frond lineari-oblong, procumbent, carnose, plane above, tumid beneath, irregularly branched, the margins sinuate; the fruit from under the margin; *calyptra* exserted, oblongo-cylindraceous, smooth. *Linn. sp. pl. p.* 1602. *Hook. Br. Jung. t.* 46.

In very wet situations; common. A variety at Cromaglown, near Killarney, growing among the tops of the tufts of *Dicranum flexuosum*, was linear, of a very pale light green, and had a very evident nerve to the frond.

7. J. *multifida*, LINN. Frond linear, nerveless, carnose, flattish, somewhat pinnate, fruit marginal, *calyptra* exserted, oblongo-cylindraceous, tuberculated. *Linn. sp. pl. p.* 1602. *Hook. Br. Jung. t.* 45.

On wet spots, among grass, heath, &c.; common. Foreign specimens of *J. palmata, Hedw.* quite accord with a variety of our plant in the adscendent and palmate fronds.

8. J. *Lyellii*, HOOK. Frond oblongo-linear, subdichotomous, nerved; calyx surrounded by a cuticular elevation of the frond, cylindrical, subplicate. *Hook. Br. Jung. t.* 77. and *J. hibernica t.* 78.

In boggy spots; rare. Near Bantry, *Miss Hutchins*, At Lough Bray, near Dublin. Woods at Killarney.

2. *Foliaceous.*

The following sections are adopted from Dr. Hooker's excellent arrangement in his English Flora.

A. STEMS WITHOUT STIPULES.

* *Leaves undivided.*

9. J. *asplenioides*, LINN. Leaves obovato-rotundate, ciliato-dentate, somewhat recurved; fruit terminal and lateral; calyx oblong, compressed, oblique, the mouth truncated, ciliated. *Linn. sp. pl. p.* 1597. *Hook. Br. Jung. t.* 13.

Among mosses on banks; common. A large and handsome species, acquiring six or seven inches in length. The leaves have their edges recurved towards the base, where they are about to embrace the stem, and from that all along the anterior edge.

10. J. *spinulosa*, DICKS. Stem erect; leaves ovate recurved, their margin and apex on one side dentato-spinulose, fruit lateral, calyx roundish, compressed, the mouth truncated, ciliated. *Dicks. Cr. Fasc.* 2, *p.* 14. *Hook. Br. Jung. t.* 14.

On trees and shaded rocks; common. Miss Hutchins discovered a minute variety of this, with the leaves few, tridentate. At Cromaglown is another on trees in cæspitose, horizontal shoots, whose leaves are minute, cordate.

11. J. *decipiens*, HOOK. Stem erect, the upper leaves subcompressed larger, rotundate, the lower ovate, all of them marginate, reticulated, with very few spiniform teeth. *Hook. Br. Jung. t.* 60.

On rocks in exposed situations; not very uncommon in the South of Ireland.

12. J. *pumila*, WITH. Stem ascending rather short; leaves oblong, concave; fruit terminal; calyx oblongo-ovate, acuminate, plicate, the mouth dentato-ciliate. *With. Bot. Arr. ed.* 3, *p.* 866. *Hook. Br. Jung. t.* 17.

On rocks at the sides of streams and rivers; common.

13. J. *cordifolia*, HOOK. Stem erect; leaves erect, concave cordate, amplexicaul; fruit terminal and axillary; calyx oblongo-ovate, subplicate, the mouth minute, denticulate. *Hook. Br. Jung. t.* 32.

On Mangerton, in the stream from the Punch Bowl.

14. J. *Sphagni*, DICKS. Leaves orbicular, secund; fruit terminal on short proper branches; calyx oblong, wider in the middle, the mouth contracted, denticulate. *Dicks. Cr. Fasc.* 1, *p.* 6, *t.* 1. *Hook. Br. Jung. t.* 33, *and Supp. t.* 2.

The clusters of *gemmæ* are sometimes found on the tops of branches leafy throughout.

15. J. *crenulata*, SMITH. Stem procumbent; leaves orbicular marginated, often secund; fruit terminal; calyx obovate, compressed, quadrangular, the mouth much contracted, toothed. *Eng. Bot. t.* 1463. *Hook. Br. Jung. t.* 37.

On heaths and in woods; not uncommon. The *calyx* opens by four *laciniæ*, each of which is serrulated; its mouth at length becomes widely expanded.

16. J. *sphærocarpa*, HOOK. Stem ascending; upper leaves oblongo-ovate, the lower nearly round; fruit terminal; calyx cylindraceo-obovate, contracted at the mouth, slightly curved; capsule elliptical. *Hook. Br. Jung. t.* 74.

On stones; at Turk Waterfall; also near Dublin: not uncommon.

17. J. *hyalina*, HOOK. Stem flexuose; leaves roundish slightly waved, concave; fruit terminal; calyx oblong angulate, the mouth contracted, toothed. *Hook. Br. Jung. t.* 63.

On the stream's side of Sefing Mountain, near Dublin; and at

Aooreagh River, near Sneem: rare. This species is more reddish and pellucid than the preceding or than *J. pumila.* A variety from Aooreagh River has the leaves broad, kidney-shaped; the calyx narrow below, plicate above; the stems more erect.

18. J. *compressa,* Hook. Stem erect; leaves orbicular adpressed, secund; fruit terminal; calyx immersed in the perichætial leaves, oblong, fleshy, the mouth open, toothed. *Hook. Br. Jung. t.* 38.

Sides of rivulets; at Lough Bray. Near Bantry, *Miss Hutchins.* At Aooreagh River, near Sneem. The tops of the shoots are wider and redder than the inferior part. Stipules are found on the very young shoots only. When fresh it is very fragrant.

* * *Leaves emarginate or bifid, the segments equal.*

19. J. *microscopica.* Stem very minute, very slender, curved; leaves ovato-lanceolate, concave, reticulate, celluloso-serrate, distant, patent.

On *Hypnum loreum,* on a loosely cæspitose bank in the wood at Gortagarree, near Killarney. This, the most minute of the genus yet discovered, grew almost parasitically on the Hypnum, on which it was detected by the microscope. Although the fruit has not been found, there are abundant marks to characterise the species. The stems are not one-tenth as broad as the leaves, and these are of a very pale green colour, and serrulated on the margin by the projections of angular, colourless, pellucid cells. The naked eye can trace no form whatever, only a minute greenish stain appearing on the paper to which it is affixed.

20. J. *emarginata,* Ehrhart. Stem erect; leaves patent, obcordate, emarginate; fruit terminal; calyx immersed in the perichætial leaves, ovate, toothed. *Ehrh. Beit.* 3, *p.* 80. *Hook. Br. Jung. t.* 27.

On wet rocks; common.

21. J. *concinnata,* Lightfoot. Stem erect; leaves very closely imbricated, erect, concave, ovate, obtuse, emarginate; fruit terminal; calyx none; calyptra concealed by the perichætial leaves. *Light. Flor. Scot. v.* 2, *p.* 786. *Hook. Br. Jung. t.* 3.

On Macgillicuddy's Reeks, and other high mountains. To the naked eye the branches appear destitute of leaves and have a silvery hue.

22. J. *Orcadensis,* Hook. Stems erect; leaves closely imbricated, erecto-patent, cordato-ovate, their margins recurved. *Hook. Br. Jung. t.* 71.

On Brandon Hill; rare.

23. J. *inflata,* Huds. Stems erect; leaves roundish, acutely bifid, concave, the segments very obtuse; fruit terminal; calyx oblongo-obovate, the mouth contracted, toothed. *Hudson, Fl. Ang. p.* 571. *Hooker Brit. Jung. t.* 38.

On stones at Powerscourt Waterfall. Near Bantry, *Miss Hutchins.*

24. J. *turbinata*, Wilson. "Stem procumbent; leaves roundish concave, acutely bifid, coarsely reticulated, the segments obtuse, those of the perichætium larger than the rest, fruit terminal, perianth (mostly fertile) pyriform, plicate, contracted and toothed at the mouth." *Wilson in Eng. Bot. Supp. Hook. Eng. Flor. v.* 5, *part* 1, *p.* 111.

Woodlands, near Dublin, *Mr. W. Wilson.* This plant I have not seen.

25. J. *excisa*, Dickson. Stem prostrate; leaves patent subquadrate, deeply emarginate; fruit terminal; calyx oblongo-ovate, the mouth plicated, toothed. *Dicks. Cr. Fasc.* 3, *p.* 2, *t.* 8, *f.* 7. *Hook. Br. Jung. t.* 9.

On the mountains near Dublin.

26. J. *ventricosa*, Dicks. Stem prostrate; leaves patent, subquadrate, bluntly emarginate, their sides incurved; fruit terminal; calyx at length oblong, the mouth contracted, plicate toothed. *Dicks. Cr. Fasc.* 2, *p.* 14. *Hook. Br. Jung. t.* 28.

Mountains of Dublin and Wicklow; common. The calyx is at first nearly spherical, and appears to be lateral, from the young shoots passing it.

27. J. *Turneri*, Hook. Leaves broadly ovate, acutely bipartite, the segments conduplicate, spinuloso-dentate; fruit terminal; calyx lineari-oblong, plicate. *Hook. Br. Jung. t.* 29.

Shady banks of a mountain rivulet, near Bantry, *Miss Hutchins.* This has never been seen growing but by its discoverer.

28. J. *bicuspidata*, Linn. Stem procumbent; leaves oblongo-subquadrate, acutely bifid, the segments acute, straight, entire; fruit radical; calyx lineari-oblong, plicated, toothed. *Linn. sp. pl.* 1589. *Hook. Br. Jung. t.* 11.

On moist banks; common.

29. J. *byssacea*, Roth. Stem procumbent; leaves subquadrate, obtusely bifid, their segments acute; fruit terminal; calyx oblong, plicate, the mouth toothed. *Roth. Cat. Bot. v.* 2, *p.* 158. *Hook. Br. Jung. t.* 12.

On paths in woods and on bare bogs; common.

30. J. *connivens*, Dicks. Stem procumbent; leaves orbicular concave, deeply notched, the segments somewhat connivent; fruit terminal upon short proper branches; calyx oblong inflated, the mouth contracted, ciliated. *Dicks. Cr. Fasc.* 4, *p.* 19, *t.* 11. *Hook. Br. Jung. t.* 15.

On banks and ditches; not uncommon.

31. J. *curvifolia*, Dicks. Stem procumbent; leaves roundish, very concave, deeply bifid, the segments incurved; fruit ter-

minal, on short proper branches; calyx oblong, subplicate, the mouth dentate. *Dicks. Cr. Fasc.* 2, *t.* 5, *f.* 7. *Hook. Br. Jung. t.* 16.

On decaying timber, in woods; not uncommon. This has a remarkable perichætium. The colour is whitish and red.

* * * *Leaves tri-quadrifid; the segments equal.*

32. J. *capitata*, Hook. Stem prostrate; leaves roundato-quadrate, the lower bifid, the upper capitato-imbricate at the top and tri-quadrifid; calyx terminal, oblongo-ovate, subplicate, the mouth contracted, toothed. *Hook. Br. Jung. t.* 80.

On dry mountain rocks, near Bantry, *Miss Hutchins.*

33. J. *incisa*, Schrader. Stem prostrate; leaves rotundato-quadrate, waved, trifid, the segments unequal, here and there toothed; fruit terminal; calyx obovate. *Schrad. Samml.* 2, *p.* 5. *Hook. Br. Jung. t.* 10.

On wet banks; not uncommon.

34. J. *pusilla*, Linn. Stem procumbent; leaves large, quadrate irregularly 2—3-fid; fruit lateral by innovations; calyx campanulate, the mouth wide, waved, and cut; capsule globose, bursting irregularly. *Linn. sp. pl.* 1602. *Hook. Br. Jung. t.* 69.

On wet clay; common. In the irregular disruption of the capsule this plant forms an exception to the generic character. It flowers at all seasons of the year in the South of Ireland. The seeds are strongly muricated.

* * * * *Leaves bifid; the segments unequal, conduplicate.*

35. J. *nemorosa*, Linn. Stem erect; leaves unequally 2-lobed, dentato-ciliate, lobes conduplicate, the lower larger, obovate, the upper subcordate, obtuse; fruit terminal; calyx oblong, incurved, compressed, the mouth truncated, dentato-ciliate. *Linn. sp. pl. p.* 1598. *Hook. Br. Jung. t.* 21.

In wet situations; common. This is a most variable species, as to colour, recurvation of the lobes of the leaves, and, above all, as to the degree of serrature of the leaves.

36. J. *undulata*, Linn. Stem erect; leaves unequally 2-lobed, entire or slightly serrulate, lobes conduplicate, the lower larger obovate, the upper subcordate obtuse; fruit terminal, calyx oblong, incurved, compressed, the mouth truncated, nearly entire. *Linn. sp. pl. p.* 1598. *Hook. Br. Jung. t.* 22.

In wet situations; common. Although from Linnæus and Dillenius down to the present time this has been kept a distinct species from the preceding, I do not see how certain states of it are to be defined and distinguished; nor can I name them without the assistance of a lens, to tell the serratures of the leaves and calyx. Two and three fertile capsules in the same calyx are not uncommon at Sheen bridge, near Kenmare.

37. J. *planifolia*, HOOK. Stem erect; leaves bipartite, lobes unequal, dentato-ciliate, conduplicate, the lower larger, ovate, the upper cordate. *Hook. Br. Jung. t.* 67.

On the summit of Brandon Hill; rare.

38. J. *umbrosa*. SCHRADER. Stem decumbent; leaves unequally lobed, lobes conduplicate, their tops serrated, acute, the upper rotundato-ovate, the lower larger, ovate; fruit terminal; calyx oblong, incurved, compressed, the mouth truncated, entire. *Schrad. Samml.* 2, *p.* 5. *Hook. Br. Jung. t.* 24.

On rocks; near Dublin.

39. J. *resupinata*, LINN. Stem decumbent; leaves rotundate, almost equally 2-lobed, entire, the lobes conduplicate; fruit terminal; calyx oblong, incurved, compressed, the mouth truncated, denticulate. *Linn. sp. pl. p.* 1598. *Hook. Br. Jung. t.* 23.

On wet banks; common.

40. J. *albicans*, LINN. Leaves unequally 2-lobed, the lobes conduplicate, with a pellucid line or nerve in the middle, serrated at the point, the upper oblongo-ovate, acute, the lower larger, somewhat scymitar-shaped; fruit terminal; calyx obovate, cylindraceous, subcompressed, the mouth contracted, plicate, toothed. *Linn. sp. pl. p.* 1599. *Hook. Br. Jung. t.* 25.

On moist banks; common.

41. J. *obtusifolia*, HOOK. Leaves unequally 2-lobed, the lobes conduplicate, obtuse, entire, the upper oblong, obtuse, the lower large, somewhat scymitar-shaped; fruit terminal; calyx obovate, the mouth contracted, toothed. *Hook. Br. Jung. t.* 26.

On moist banks. Near Bantry, *Miss Hutchins*. Near Dunkerron. Dunscombe's Wood, near Cork, *Mr. Wilson*.

42. J. *Dicksoni*, HOOK. Stem ascending; leaves unequally lobed, conduplicate, narrow ovate, entire, acute, the lower the larger; fruit terminal; calyx ovate, plicate, the mouth contracted, toothed. *Hook. Br. Jung. t.* 48.

Mountains near Dublin.

43. J. *minuta*, CRANTZ. Leaves horizontally patent, subconduplicate, lobes of the upper equal, of the lower unequal, all rather acute; fruit terminal; calyx obovate, the mouth contracted, denticulate. *Crantz Hist. Groenl. p.* 288. *Hook. Br. Jung. t.* 44.

On dry banks; not uncommon. Fruit rare; Lough Bray, near Dublin.

44. J. *exsecta*, SCHMIDEL. Stem prostrate; leaves ovato-lanceolate, concave, the lobes very unequal, acute, subconduplicate, the lower short acuminate dentiform, the upper often bidentate. *Schmid. Ic. p.* 241, *t.* 62, *f.* 2. *Hook. Br. Jung. t.* 19.

On dry banks; not uncommon: fruit unknown.

45. J. *cochleariformis*, WEIS. Leaves imbricated, unequally 2-lobed, conduplicate, the upper lobes larger, concave, bifid, serrated at the point, the lower oblongo-ovate, saccate. *Weis. Pl. Cr. p.* 123. *Hook. Br. Jung. t.* 68.

On subalpine bogs; common: fruit unknown.

46. J. *complanata*, LINN. Leaves distichous, imbricated, unequally 2-lobed, the upper lobes larger, orbicular, the lower ovate, adpressed, plane; fruit terminal; calyx oblong, compressed, truncate. *Linn. sp. pl. p.* 1599. *Hook. Br. Jung. t.* 81.

On trees; frequent. This species has lenticular gemmæ. Pencils of fibres, from the duplicature between the lobes of the leaves, expand at their terminations into flat discs, by which the plant adheres to subjacent substances, as occurs in the Virginian Creeper. The seeds are large in proportion to the spiral filaments.

B. STIPULATÆ.

a. Leaves entire or rarely emarginate.

47. J. *Taylori*, HOOK. Leaves orbicular, or ovato-acuminate, largely reticulated, stipules broadly subulate; fruit terminal; calyx ovate, compressed a little at the mouth, truncated, 2-lipped. *Hook. Br. Jung. t.* 56. *J. anomala*, *Hook. Br. Jung. t.* 24.

On moist declivities of the mountains; not uncommon.

48. J. *scalaris*, SCHRADER. Leaves rotundate, concave, entire or emarginate; stipules broadly subulate; fruit terminal; calyx immersed in the perichætial leaves. *Schrad. Samml.* 2, *p.* 4. *Hook. Br. Jung. t.* 61.

On moist clay banks; common.

49. J. *polyanthos*, LINN. Leaves plane, rotundato-quadrate, entire or emarginate; stipules oblong, bifid; fruit on short proper branches from the underside of the stem; calyx much shorter than the calyptra, laciniated. *Linn. sp. pl. p.* 1597. *Hook. Br. Jung. t.* 62.

In wet spots, especially under trees; common. The stipules are minute compared to the leaves.

50. J. *cuneifolia*, HOOK. Stem creeping; leaves rather remote cuneiform, entire or very obtusely notched at the extremity; stipules minute, ovate, bifid. *Hook. Br. Jung. t.* 64.

On *J. Tamarisci*, near Bantry, *Miss Hutchins*.

51. J. *viticulosa*, LINN. Stem procumbent; leaves flat, ovate, entire; stipules broadly ovate, dentato-laciniate; fruit dorsal; calyx subterraneous, oblong, fleshy, the mouth fimbriated with foliaceous scales. *Linn. sp. pl. p.* 1597. *Hook. Br. Jung. t.* 60.

On the ground, among mosses; common. The calyx, perhaps, would be better called pensile: it is by no means immersed in the soil, but attached by the neck on one side, it hangs down freely. This applies to the next species.

52. J. *Trichomanis*, Dicks. Stem procumbent; leaves flat, convex, ovate or emarginate; stipules rotundato-lunulate, emarginate; fruit dorsal; calyx subterraneous (pensile), oblong acuminate, fleshy, hispid, the mouth crenated. *Dicks. Cr. Fasc.* 3, *t.* 8, *f.* 5 *Hook. Br. Jung. t.* 79.

On wet soil; common. The stipules sometimes 3—4-fid; the leaves are occasionally glaucous, usually of an apple green; the capsule lineari-oblong, its valves spirally twisted.

b. Leaves bi-tri-fid, or partite, segments equal.

** Stipules very small, distinct.*

53. J. *bidentata*, Linn. Stem procumbent; leaves broadly ovate, decurrent, emarginate, acutely or obtusely bidentate; stipules bi-tri-fid, laciniated; fruit terminal; calyx oblong, triangular, the mouth laciniated. *Linn. sp. pl. p.* 1598. *Hook. Br. Jung. t.* 30. *Jung. heterophylla, Schrad. in Journ. Bot.* 5, *p.* 66. *Hook. Br. Jung. t.* 31.

On moist mossy banks; common. On the specimens from Blackwater Bridge, County of Kerry, I find the calyces acutely triangular, with the angle corresponding to the inferior side of the stem serrate. As I have found some specimens which, with the utmost care in the investigation, I could not refer to one more than the other species quoted, I have ventured to unite them.

54. J. *scutata*, Web. et Mohr. Stem procumbent; leaves rounded, acutely emarginate at the top, the segments acute straight; stipules large, ovate, acuminate, subdentate at the base; fruit lateral; calyx obovate, subplicate at the top, the mouth contracted, bluntly toothed. *Web. et Mohr, Cr. Germ. p.* 408. *Hook. Br. Jung. t.* 41.

Near Bantry, *Miss Hutchins.* Lough Bray, on exposed rocks· Turk Waterfall, near Killarney, *Mr. Wilson.*

55. J. *Francisci*, Hook. Stem nearly erect; leaves ovate, concave, acutely emarginate; stipules minute, ovate, bifid; fruit terminal upon short proper branches; calyx oblongo-cylindraceous, the mouth toothed. *Hook. Br. Jung. t.* 49.

Near Bantry, *Miss Hutchins*; very rare.

56. J. *barbata*, Schreber. Stem procumbent; leaves rotundato-quadrate, tri-quadrifid; stipules lanceolate, acutely bifid and laciniated; fruit terminal; calyx ovate, the mouth contracted, toothed. *Schreb. Spicil. Fl. Lips. p.* 107. *Hook. Br. Jung. t.* 70.

On turf banks, with mosses; rather rare.

57. J. *reptans*, LINN. Stems cæspitose; leaves subquadrate, incurved, acutely quadridentate; stipules broadly quadrate, quadridentate; fruit dorsal; calyx oblong plicate, the mouth toothed. *Linn. sp. pl. p.* 1599. *Hook. Br. Jung. t.* 65.

In woods; common.

58. J. *trilobata*, LINN. Leaves imbricated on the upper side, ovate, concave, obtusely tridentate; stipules broadly subquadrate, crenate; fruit dorsal; calyx oblong subacuminate. *Linn. sp. pl. p.* 1599. *Hook. Br. Jung.* 79.

On the summit of Magillicuddy's Reeks. It varies much in size. Fertile calyces have not yet been found in Ireland.

* * *Stipules nearly as large as the leaves, and very like them.*

59. J. *juniperina*, SWARTZ. Stem erect; leaves and stipules lineari-lanceolate, bipartite, falcato-secund; fruit terminal; calyx ovate, laciniated, the laciniæ perichætial. *Sw. Fl. Ind. Occ. p.* 1855. *Hook. Br. Jung. t.* 4.

On mountains; common. The above applies to West Indian specimens. The Irish have the segments of the leaves nearly straight, and are somewhat smaller in the stems.

60. J. *julacea*, LINN. Stems slender, nearly erect; leaves and stipules ovate, deeply bifid, imbricated, erect; those of the perichætium quadripartite, their segments lanceolate, acuminated, subserrated; fruit terminal; calyx oblong, subplicate, the mouth open, toothed. *Linn. sp. pl. p.* 1601. *Hook. Br. Jung. t.* 2.

Usually on the higher mountains. A variety is found at Aooreagh River, near Sneem, not two hundred feet above the level of the sea, in which the serratures of the leaves are not to be observed, whilst the leaves themselves are marginated.

61. J. *laxifolia*, HOOK. Stems filiform; leaves and stipules remote, erecto-patent, ovate, subcarinate, acutely bifid, their segments acute, erect; fruit terminal; calyx oblong, subplicate, the mouth contracted, toothed. *Hook. Br. Jung. t.* 59.

On sides of rocky rivulets. Near Bantry, *Miss Hutchins.* At Castle Kelly Mountain, near Dublin; and at Aooreagh River, near Sneem.

62. J. *setacea*, WEBER. Leaves and stipules deeply bipartite, the segments setaceous, jointed, patent, incurved; fruit terminal on short proper branches; calyx oblong, the mouth open, ciliated. *Web. spicil. p.* 155. *Hook. Br. Jung. t.* 8.

On bogs and moist banks; common.

63. J. *tricophylla*, LINN. Leaves and stipules deeply 3—4-partite, the segments setaceous, jointed, patent, straight; fruit terminal; calyx oblong, the mouth contracted, ciliated. *Linn. sp. pl. p.* 1601. *Hook. Br. Jung. t.* 7.

On bogs; less frequent than the last.

c. Leaves bifid, lobes unequal, conduplicate.

* *Lower or smaller segments plane.*

64. J. *platyphylla*, LINN. Stem pinnate; leaves unequally 2-lobed, the upper lobe rotundato-ovate, nearly entire, or spinuloso-dentate, the lower ligulate, entire, the stipules entire or dentate; fruit lateral; calyx ovate, compressed, the mouth truncated, inciso-serrate. *Linn. sp. pl. p.* 1600. *Hook. Br. Jung. t.* 40. *J. lævigata, Schrad. Samml.* 2, *p.* 6. *Hook. Br. Jung. t.* 35.

On rocks and stones; common. This species is subject to many remarkable varieties; as of lighter colour, glossy surface, size, degree of serrature of the leaves. At Aooreagh River, near Killarney, is a state with lurid leaves, small size, the lower lobe wider than the upper and totally unconnected with it. This complete separation of the two lobes also is found on specimens on Dunkerron Castle.

65. J. *ciliaris*, LINN. Stem pinnate; leaves convex unequally 2-lobed, both lobes ovate bipartite, elongato-ciliate; fruit lateral; calyx obovate, the mouth contracted, toothed. *Linn. sp. pl. p.* 1601. *Hook. Br. Jung. t.* 65.

On Brandon Hill: sterile.

66. J. *Woodsii*, HOOK. Stem bi-tripinnate; leaves convex, unequally 2-lobed, the upper lobe bipartite, spinuloso-dentate, the lower minute, oblong, nearly entire; stipules large, ovate, bipartite, spinuloso-dentate, with the base spurred on each side. *Hook. Br. Jung. t.* 66.

On Mangerton, *Mr. J. Woods.* Between large stones at the side of the Devil's Punch Bowl, Mangerton. The larger size, and more distant and acute branches, readily distinguish this from the preceding.

67. J. *tomentella*, EHRHART. Stems bipinnate; leaves nearly plane, unequally 2-lobed, capillari-multifid, upper lobes bipartite, the lower minute; fruit axillary; calyx oblongo-cylindraceous, hirsute, the mouth open. *Ehrh. Beit.* 2, *p.* 150. *Hook. Br. Jung. t.* 36.

In woods and marshes; common. The leaf sometimes splits into four laciniæ. On the tops of the shoots there occur, at Blackwater, County of Kerry, clusters of linear, jointed bodies not enclosed in any calyx.

* * *Lower segments of the leaves involute.*

68. J. *Mackaii*, HOOK. Stem creeping; leaves unequally 2-lobed, the upper lobe rotundate, the lower minute, involute; stipules large rotundato-obcordate; fruit lateral as well as terminal; calyx obcordate, compressed, gibbous below, the mouth contracted, toothed. *Hook. Br. Jung. t.* 53.

On the faces of perpendicular rocks, especially limestone; common.

69. J. *serpyllifolia*, DICKS. Leaves unequally 2-lobed, the

upper lobe oblongo-rotundate, the lower a minute involution of the upper; stipules rotundate, bifid; fruit lateral; calyx obovate, pentagonal, the mouth contracted, somewhat toothed; capsule pellucid, quadrifid. *Dicks. Cr. Fasc.* 4, *p.* 19. *Hook. Br. Jung. t.* 42.

On mosses, trees, and rocks; very common. A variety occurs at Blackwater Bridge, County of Kerry, exceedingly minute; the leaves acute, marginated; the stipules scarcely wider than the stem; their segments divergent. Another on Blackwater Hill, under rocks, is more than double the usual size in all its parts, and grows so much in tufts that in dry weather these form cushions of an inch in depth.

70. J. *hamatifolia*, Hook. Stem creeping; leaves unequally 2-lobed, the upper lobe ovate, acuminated, somewhat incurved, the lower involute; stipules ovate, acutely bifid; fruit lateral; calyx obovate, pentagonal, the mouth contracted, toothed; capsule pellucid, quadrifid. *Hook. Br. Jung. t.* 51.

On old stems of furze, also on trees and wet rocks; common. Sometimes, as at Woodlands, near Dublin, the stipules are scarcely to be found, and the calyx is by no means angular.

71. J. *minutissima*, Smith. Stem creeping; leaves indistinctly and unequally 2-lobed, the upper lobe hemispherical, the lower minute, almost obsolete; stipules ovato-rotundate, bifid; fruit lateral; calyx obovato-rotundate, pentagonal, the mouth contracted, slightly toothed; capsule pellucid quadrifid. *Eng. Bot.* 1633. *Hook. Br. Jung. t.* 52.

On trees at Woodlands, near Dublin. On stems of furze, also on rocks, County of Kerry. However minute this species, as compared with most of its congeners, yet is it several times larger than *J. microscopica.*

72. J. *calyptrifolia*, Hook. Stem creeping; leaves unequally 2-lobed, the upper lobe larger, very concave, rotundate, suddenly elongato-acuminate, the lower obtusely quadrate, involute; fruit lateral; calyx oblong, the top flat, sub-5-dentate, the mouth contracted; capsule pellucid, quadrifid. *Hook. Brit. Jung. t.* 43.

On the stems of old furze in the mountains, near Glengariff, *Miss Hutchins.* Near Dunkerron, in the mountains; not very rare.

* * * *Lower segments of the leaf saccate.*

73. J. *Hutchinsiæ*, Hook. Leaves unequally 2-lobed, the upper lobe ovate, spinuloso-serrate, the lower minute, saccate, often unidentate at the base; stipules rotundato-ovate, subserrate, acutely bifid; fruit lateral; calyx triangulari-obcordate. *Hook. Br. Jung. t.* 1.

On the wet faces of rocks, especially of waterfalls in woods; near Bantry, *Miss Hutchins.* Near Killarney. Not very rare.

74. J. *dilatata*, Linn. Stems prostrate; leaves unequally

2-lobed, the upper lobe roundish, acute, the lower rotundato-saccate; stipules roundish, plane, emarginate; fruit terminal; calyx obcordate, tuberculated, triangular. *Linn. Sp. pl. p.* 1600. *Hook. Br. Jung. t.* 5.

On trees, also on rocks; very common.

75. J. *Tamarisci*, LINN. Stems prostrate; leaves unequally 2-lobed, the upper lobe ovato-rotundate, the lower minute, obovate, saccate; stipules subquadrate, emarginate, their margins revolute; fruit on short terminal branches; calyx obovate, smooth, triangular. *Linn. sp. pl. p.* 1600. *Hook. Br. Jung. t.* 6.

On bushes, trees, and rocks; common. The stipules are often twice as wide as the stems. The middle and upper leaves of the branch are frequently apiculated, and sometimes even the inferior likewise.

7. ANTHOCEROS, *Linn.*

Male flowers aggregate, immersed in the frond. *Capsule* linear, 2-valved, having a central filament, and issuing out of a tubular prolongation of the superior membrane of the frond.

1. A. *punctatus*, LINN. Frond subrotundate, stellato-lobate, the lobes nerveless broad, obovate, their margins somewhat elevated, waved, subcrenate. *Linn. sp. pl. p.* 1606. *Dill. Musc. t.* 68, *f.* 1, 2. *Schmid. Ic. t.* 19. *Eng. Bot. t.* 1538. *Musc. Brit. ed.* 2, *p.* 216.

On clay or soil bare of other vegetation, as in fallow fields, sides of ditches; very common: flowering throughout the year in the County of Kerry. That there are two distinct species on the Continent of Europe, it may be rash to deny, as all Continental botanists seem agreed on their existence. In Ireland I have seen but a single species, sometimes exactly represented by the Dillenian figure 1, at other times by 2; and not unfrequently intermediate specimens not quite referable to one or the other are to be found. This *genus* has hitherto been arranged among the *calyptrati;* which, I fear, was only accidentally true, as the real calyptra seems to have escaped observation. It is true Hedwig has delineated and described in his *Theoria, ed. of* 1798, *pag.* 189, what would appear to be decisive on the subject; he says, "elevatur etiam monticulus conicus, cujus summitati insidet opus "fuscum e tenerrimis filamentis ad calyptræ formam compositum, brevi "stylisco instructum. Emergit postea inde corpusculum cylindrico-"conicum, corniculum referens, tectum in cacumine dicto stylisco mi-"træformi, qui diutius ibi, punctuli fusci specie ad nudum oculum, "moram nectere solet, nisi tempestatum injuriis inde deturbetur. Non "latuisse etiam Schmidelium hanc singularem partem constat e numero "8vo. suæ descriptionis." I have repeatedly, at different seasons of the year, at different periods of maturity, and for many years, in vain looked for such a structure in our Irish species. I can hardly suppose that Hedwig was deceived, although even in the foregoing extract there is some confusion in first placing the calyptra on the top of the conical elevation of the upper surface of the frond, and afterwards on the summit of the capsule, which bursts through this surface. The capsule almost universally commences to wither at its very summit, which turns brown, dry, and exhibits its reticulation very evidently. This withering of the summit takes place sometimes, just as it is emerging out of the conical elevation of the upper surface of the frond, and at other times not until the capsule has attained its full height of one inch or more; it may most easily be mistaken for a calyptra. The true calyptra, however, never emerges out of the frond, but remains thick, carnose, of a globular form, and slightly yellowish-brown, around the base of the peduncle, having opened at the top to give exit to the capsule. In the youngest state of the plant the edges of the lobes lie flat, they are subsequently elevated, forming a cavity, from the bottom of which the fruit emerges. There are spherical elevations of the superior surface of the frond, beneath which two, sometimes three anthers lie; these elevations seem to burst irregularly. The anthers at first greenish, at maturity assume a yellowish orange colour; their shape is oblong, flattened often on one side from the pressure apparently of the twin anther; they contain a milky fluid. They are shortly pedicellated, and are found on plants distinct from the capsuliferous. The sheath of the capsule, (for it can never properly be termed a calyx, whose origin in this tribe of plants, is on the receptacle and around the base of the pedicell of the capsule), or elevation around of the superior membrane of the frond is about one-tenth of an inch in height. The capsule is one or two inches in length, at first all grass green, resembling the seedling shoots of onions as observed long ago by Buxbaum; turning brown previous to dehiscence, which takes place by the bursting of the two opposite longitudinal grooves hitherto covered by a thin pale membrane. The opening displays a central filiform *columella*, which is surrounded by a cylindrical transparent greenish membrane, out of which on all sides issue flat processes, variously angular, sometimes expanded at the top, these passing along the interstices between the *quaternions* of seeds embrace the *quaternions;* when these last are ripe, the flat processes detach themselves from them as well as from the membrane around the columella. The ripe *quaternions* while yet held together by the processes, form a cylinder around the *columella.* The *quaternions* in a very young state are pellucid, colourless spheres containing near the centre (apparently in a fluid) two dark oblong and parallel bodies attenuated at each end; after some time, each of the two divides into two equal parts, at length the four approach, and in time form a perfect *quaternion,* which, as it ripens, no longer displays its original spherical covering. Thus it seems demonstrated, that what have been hitherto termed seeds are properly the unions of several. This is true of the other *Hepaticæ* allied to Anthoceros in having flat fronds. Thus also, as in the *Musci,* the interior membrane of the capsule reflected on the *columella* produces the seeds. The *columella* is continued down to the junction of the capsule with the calyptra; the capsule, therefore, cannot be said to be pedicellated. There are no true pores, as in the *Marchantieæ* usually occur, on the surface of the frond. The sap or juice is singularly viscid and gelatinous, and presents a difficulty in dissecting the living plant. The mode of budding of this species has not hitherto been noticed. In the month of June I have observed towards the base of the fronds, and at the edges, the upper and lower membranes to separate and discharge a number of minute flat lobed reticulated and greenish bodies like fronds in miniature; with these, however, I have also observed discharged oblongo-rotundate brownish bodies, evidently reticulated, whose destination or functions I am at a loss to conjecture; they are, however, very distinct from the compactly granulated dark green bodies of *Jungermannia Blasia* described by Dr. Hooke.

8. Riccia, *Linn.*

Capsule, with its exterior membrane calyptriform, bearing a style, the interior enclosing numerous subangular seeds united in fours or *quaternions*, with pellucid coats. The style protruded above the frond.

1. R. *crystallina*, Linn. Frond oblong, bilobed, dichotomous, carnose, punctate. *Linn. sp. pl. p.* 1605 (and *R. glauca* of the same page). *Musc. Brit. ed.* 2. *p.* 212.

On banks and hedges; common; flowering all the year. The style is brownish-black, opaque. Capsules near the base of the frond sometimes ripen when those nearer the summit are quite immature. Among the *quaternions* of seeds there are no spiral or other filaments. I have observed of three capsules closely placed, the central to be abortive, in which case the covering that in a young state encloses each *quaternion*, though fully formed, was empty and collapsed. In two instances only, out of numerous trials, have I found immersed in the frond not far from the top, oblongo-spherical bodies of a light brownish colour, as large as the *quaternions*, but perfectly smooth and unmarked on the surface by any lines of division. These, I have no other reason to doubt are the true anthers, but the fewness of the observations.

ORDER III.

LICHENES. *Hoffm.*

Plants of less diversity of structure than the *Musci* or *Hepaticæ;* consisting of a *thallus*, corresponding to the organs of vegetation; and of *apothecia*, corresponding to those of reproduction: unaffected by difference of temperature of the seasons or of climates, hence more uniformly scattered over the earth's surface than plants of the superior orders; hence, too, they are more rarely green on the surface, although the application of moisture induces a slight greenish tint on nearly all; of long duration, and slow growth; of peculiarly slow dissemination, not appearing to be supplied with the means of expelling their seeds at the period of maturity; many, however, are furnished with *buds*, an accessory mode of reproduction. Living on the surface of soil, of rocks and of trees, they are neither properly parasites on the latter, nor do they appear to draw any nutriment from the former, their roots serving the simple purpose of attachment. Lichens partially immersed in water, convey the fluid to the parts that are not submerged. Beneath the superficial or cortical layer of the *thallus*, is one green or becoming green by abrasion. The *Gongyli* or seeds immersed in the *thallus* cannot well be distinguished from those of the *apothecia*, yet some observations point to the conjecture that the *Gongyli* of the former produce *thallus*, and those of the latter *apothecia*. The Lichens prefer the purest air and to face prevailing winds: their *Gongyli* retain vivaciousness for long periods: new islands emerged from the ocean at the distance of hundreds of miles from land, soon exhibit the Lichens of the opposite windward shores, and form the first series of plants, the cradles of future vegetation.

TABLE OF THE GENERA.

A. *Apothecia none.*

1. **LEPRARIA.** *Thallus* crustaceo-leprose, uniform effuse. *Apothecia* none. *Gongyli* covering the *thallus,* more or less scattered, naked.

2. **SPILOMA.** *Thallus* crustaceous, uniform, effuse. *Apothecia* none. *Gongyli* collected into compact masses, coloured, naked.

B. *Apothecia stalked.*

* *Stipitate; or apothecia with stalks of a proper substance.*

3. **CALICIUM.** *Thallus* crustaceous, uniform. *Apothecia* goblet-shaped, more or less stipitate, marginate, enclosing a powdery mass.

4. **BÆOMYCES.** *Thallus* crustaceous, or filmy, uniform. *Apothecia* convex or orbiculate, not bordered, on solid, soft foot-stalks.

* * *Apothecia on* PODETIA, *or stalks formed of the thallus.*

5. **CENOMYCE.** *Thallus* cartilagineo-crustaceous, or foliaceous, laciniated; *podetia* fistulose, sterile, or bearing *apothecia* on their summits. *Apothecia* hemispherico-subglobose, not bordered, fixed by the circumference.

* * * *Apothecia on the sublinear branches of a suberect thallus.*

† *Apothecia internally pulverulent.*

6. **SPHÆROPHON.** *Thallus* crustaceo-cartilaginous, branched, solid within. *Apothecia* subglobose, terminal, formed of the *thallus,* enclosing a black powdery mass, bursting with a torn margin.

† † *Apothecia internally solid.*

1. *Apothecia turbinate, at length globose.*

7. **STEREOCAULON.** *Thallus* dense, nearly woody and branched, or crustaceous. *Apothecia* stalked, turbinate, solid, marginate, at length hemispherico-globose, their margin evanescent.

2. *Apothecia discoid.*

a. Thallus compressed.

8 **EVERNIA.** *Thallus* subcrustaceous, branched and laci-

niated, or compressed and subangulate. *Apothecia* orbiculate, with an inflexed thallodal border, the disk concave, coloured.

9. **Ramalina.** *Thallus* cartilaginous, branched and laciniated, compactly cottony within. *Apothecia* orbiculate, bordered; the disk and border of the substance of the *thallus*, and of one colour.

b. Thallus cylindrical.

10. **Usnea.** *Thallus* cartilagineo-crustaceous, cylindrical, hollow, enclosing a central thread. *Apothecia* orbiculate, entirely formed of the *thallus*, and of the same colour.

11. **Alectoria.** *Thallus* cartilaginous, the branches subfiliform, subfistulose, cottony within. *Apothecia* orbiculate, thick, marginate, at length convex and losing the border, entirely formed of the *thallus*, and of the same colour.

12. **Cornicularia.** *Thallus* cartilaginous, branched, somewhat solid and cottony within. *Apothecia* orbiculate, obliquely peltate, entirely formed of the substance of the *thallus*, and of the same colour.

C. *Apothecia without footstalks.*

* *Apothecia, tubercles, immersed.*

13. **Verrucaria.** *Thallus* crustaceous or cartilagineo-membranaceous, uniform. *Apothecia* subglobose, partly immersed, of a different colour and substance from the *thallus*, enclosing a *nucleus*, the apex papillose, usually perforated.

14. **Endocarpon.** *Thallus* cartilaginous or foliaceous, often lobed. *Apothecia* globose enclosed in the *thallus*, with a marginated dusky perforation at the apex, enclosing a *nucleus*.

15. **Porina.** *Thallus* cartilagineo-membranaceous, uniform. *Apothecia* verruciform, formed of the *thallus*, one or many celled; each cell containing a *nucleus*, and opening by a perforation above, coloured, often distorted.

16. **Thelotrema.** *Thallus* cartilaginous, membranaceous or subcrustaceous. *Apothecia* verruciform, formed of the *thallus*, hollowed, marginated, containing a *nucleus* beneath a coloured disk.

* * *Apothecia, (lirellæ,) sublinear.*

17. **Syncesia.** *Thallus* crustaceous. *Apothecia* oblongo-elongate, stellato-radiate, aggregated and immersed in scattered thallodal warts. *Perithecium* none. *Lamina proligera* pellucid, supported on opaque vertical layers.

18. **Arthonia.** *Thallus* crustaceous or cartilagineo-membranaceous, uniform. *Apothecia* roundish, elongated or varying

in form, nearly plane, not bordered, within somewhat gelatinous, covered by a dark membrane.

19. Opegrapha. *Thallus* crustaceous, membranaceous or leprous, uniform. *Apothecia* oblongo-elongated, immersed or sessile, covered by a dark membrane, the disk narrow, with a proper *border*.

* * * *Apothecia discoid, round, sessile, or at length emerging.*

† *Thallus (in a moist state) gelatinous.*

20. Collema. *Thallus* of the same nature throughout, when moist gelatinous, when dry hard and cartilaginous, sometimes foliaceous. *Apothecia* orbiculate, sessile, (rarely on *podetia*), bordered, formed entirely of the *thallus.*

† † *Thallus crustaceous.*

21. Variolaria. *Thallus* crustaceous, or cartilagineo-membranaceous, uniform. *Apothecia* verruciform, formed of the *thallus*, bearing a powdery or flocculent substance which covers the disk.

22. Lecidea. *Thallus* crustaceous, uniform or scaly. *Apothecia* orbiculate, sessile, the *disk* coloured, the border of the same colour as the disk.

23. Urceolaria. *Thallus* crustaceous, uniform. *Apothecia* orbiculate, immersed in the *thallus*, the disk concave, the border formed of the crust.

24. Lecanora. *Thallus* crustaceous, uniform, or lobed and scaly at the margin. *Apothecia* orbiculate, sessile, their margins formed of the *thallus*, tumid, elevated.

† † † *Thallus foliaceous, or membranaceous.*

25. Parmelia. *Thallus* foliaceous or membranaceous, stellato-lobate or laciniated. *Apothecia* orbiculate, exteriorly beneath, as well as their margins, formed of the *thallus*, the disk concave coloured.

26. Sticta. *Thallus* foliaceous, or coriaceo-cartilaginous, hirsute beneath, and there furnished with hollow or bare spots, (*cyphellæ*). *Apothecia* orbiculate, sessile, exteriorly beneath, as well as their margins, formed of the *thallus*, the disk concave, coloured.

27. Solorina. *Thallus* foliaceous, coriaceous, lobed, free, beneath having fibrous veins. *Apothecia* subrotund, sessile, not bordered.

28. Peltidea. *Thallus* foliaceous, coriaceo-membranaceous, lobed, having woolly veins beneath. *Apothecia* borne on pro-

per lobules, orbiculate, or oblongo-rotundate, affixed by their entire bases upon the *thallus*, by which too they are bordered.

✓ 29. **Nephroma.** *Thallus* foliaceous, coriaceous or membranaceous, lobed. *Apothecia* borne on proper lobules, orbiculate or reniform, affixed by their entire bases on the inferior side of the *thallus*, by which too they are bordered.

✓ 30. **Cetraria.** *Thallus* foliaceous, cartilagineo-membranaceous, lobate, laciniated. *Apothecia* orbiculate, obliquely adnate by a part to the margin of the *thallus*, the rest free; the disk coloured, the border of the substance of the *thallus*.

31. **Gyrophora.** *Thallus* foliaceous, coriaceous, fixed by the centre. *Apothecia* orbiculate, sessile, covered by a dark membrane, the border of their own substance, (not thallodal); the disk usually marked with gyrose plaits.

More anxious to make known the species of Irish Lichens than to offer any opinion on the construction of Genera, I have limited myself to Acharius's distribution, by no means presuming to imply that new sub-divisions, lately proposed by distinguished botanists, will not prove in time worthy of adoption.

A. Apothecia none.

1. LEPRARIA. *Ach.*

Thallus crustaceo-leprose, uniform, effuse. *Apothecia* none. *Gongyli* naked, covering the *thallus*, more or less scattered.

The very first of our list is the most unsatisfactory and doubtful of the Genera of Lichens. Its present use appears to arise from its being a depository of certain species, with a powdery thallus, whose fructification is unknown. *Lepraria incana* of *Ach. Lich. Univ.* is now ascertained to be a *Lecidea;* whilst *L. æruginosa, Eng. Bot.* and *L. chlorina Ach.* have been removed by Dr. Hooker to the *Fungi.*

1. L. *viridis*, TURN. and BORR. *Crust* none; *gongyli* minute, usually clustered, bright green, globular, somewhat unequal in size, forming an irregularly continuous, thin, powdery mass. *Turn. and Borr. Lich. Br. p.* 6, (*according to Hooker in Eng. Flor. vol.* 5, *p.* 163), *L. botryoides Eng. Bot. t.* 2148.

On trees, pales, and walls; common. On alders a membranous, and in wet weather a subgelatinous substratum of a duller green is sometimes observable, but whether truly belonging to the species is uncertain, as it commonly occurs without any such appearance.

2. L. *flava*, ACH. *Crust* none; *gongyli* minute, of a bright yellow, forming an irregularly continuous crustaceous powdery mass. *Ach. Lich. Un. p.* 663. *Eng. Bot. t.* 1350.

On old trees; not uncommon. Near Belfast, *Mr. Templeton.* The crust is thinner on the pines than on old oaks.

3. L. *alba*, ACH. *Crust* grey, edged with white downy fibres; *gongyli* extremely minute, snow white, forming continuous crustaceous patches. *Ach. Meth. p.* 3. *Eng. Bot. t.* 1349.

On trunks of trees and on mosses; common. The crust is denser than in the preceding, and in the herbarium almost entirely loses its snow-white colour.

4. L. *Iolithus*, TURN. and BORR. *Crust* filmy, greyish; *gongyli* extremely minute, of a purplish red, forming a thin even powdery mass. *Turn. and Borr. Lich. Br. p.* 21, (*according to Hook. Eng. Flor. vol.* 5, *p.* 164). *Eng. Bot. t.* 2471.

On stones; Deer Park wall, near Belfast, *Mr. Templeton.*

2. SPILOMA. *Ach.*

Thallus crustaceous, uniform, effuse, usually thin, continuous. *Apothecia* none, (that is without any subgelatinous *parenchyma*). *Gongyli* collected into compact masses, coloured, naked.

In Lepraria the *Gongyli* constitute the entire *thallus*—in fact, almost the entire Lichen; but in *Spiloma* they constitute the collections similar to *Apothecia*, upon a *thallus* of a different nature and structure. In the specific characters these collections are termed *Apothecia.*

1. S. *sphærale*, ACH. *Thallus* very thin, somewhat tartareous, greyish white, cracked, bordered with black; *apothecia* minute, numerous, aggregate, marginal, convex, scabrous, opaque, black, on proper portions of the *thallus*. *Ach. Syn. p.* 2. *Hook. Eng. Flor. vol.* 5, *p.* 165.

On rocks, usually parasitic; not uncommon in Kerry. Although sometimes the *apothecia* of this species are found on *Variolaria corallina*, yet more rarely it appears to have its proper thallus, between which and the adjacent *thallus* of the *Variolaria* a black limit may be observed.

2. S. *dispersum*, TURN. and BORR. *Thallus* filmy, very thin, greyish; *apothecia* hemispherical, sooty black, scabrous. *Turn. and Borr. Lich. Br. p.* 33, (*on the authority of Hook. Eng. Flor. vol.* 5, *p.* 165). *Eng. Bot. t.* 2398.

On old oak paling, at Dunkerron, County of Kerry. Our plant agrees with the figure and description in *Eng. Bot.* except as to the colour of the *nucleus*, which with us is not greenish but rather of a very pale brown. The presence of this *nucleus* is somewhat contradictory of the Generic character.

3. S. *nigrum*, TURN. and BORR. *Thallus* pulverulento-tartareous, thin, continuous, white, with a narrow black edge; *apothecia* roundish, nearly flat, at length confluent, black. *Turn. and Borrer, Lich. Br. p.* 35, (*according to Hook. Eng. Flor. vol.* 5, *p.* 166). *Eng. Bot. t.* 2076 *and t.* 2077.

On rocks; County of Kerry.

4. S. *gregarium*, TURN. and BORR. *Thallus* filmy, thin, greyish, or slightly suffused with reddish; *apothecia* clustered, irregularly oblong, of a livid hue; *gongyli* vermillion-coloured, superficial. *Turn. and Borr. Lich. Br. p.* 42, (*according to Hook. Eng. Fl. vol.* 5, *p.* 167). *Eng. Bot. t.* 981.

On the bark of trees; common. The *gongyli* are collected upon a compact base of the *thallus*, somewhat in the nature of a *perithecium*. This species varies by the convexity or depression of the *apothecia*, by their being simple or appearing lobed from confluence, by the presence or absence of the *gongyli*, and by the surface of the apothecia being pruinose or naked.

β. Apothecia naked.

* *Apothecia stipitate, or with proper stalks.*

3. CALICIUM. *Ach.*

Thallus crustaceous, uniform, not bordered, very thin, sometimes none apparent; *apothecia* subturbinate, or goblet-shaped, stipitate, (sometimes subsessile,) enclosing a powdery mass.

1. C. *hyperellum*, ACH. *Thallus* granulated, subtartareous, of a slightly yellowish green; *apothecia* lentiform, brownish black; *stipes* short, thick, cylindrical, black. *Ach. Lich. Un. p.* 237. *Eng. Bot. t.* 1832.

On decaying timber; near Belfast, *Mr. Templeton.* The crust varies in thickness, is sometimes split and areolate. On the same *stipes* three or four apothecia are sometimes borne; the *stipes* is at times exceedingly short, and the crust more of an ash colour, constituting the *var.* termed *roscidum* by Acharius.

2. C. *spærocephalum*, ACH. *Thallus* filmy, very thin, greyish; *apothecia* turbinate, at length subglobose, of a rusty brown, the *stipes* elongate. *Ach. Meth. Lich. p.* 91. *C. claviculare*, *δ. sphærocephalum*, *Ach. L. Un. p.* 235. *Eng. Bot. t.* 414.

On decaying timber; at Powerscourt, *Dr. Whitley Stokes*. This species is often associated with *Lecanora varia*.

4. BÆOMYCES. *Pers.*

Thallus crustaceous or filmy, uniform, sometimes lobed; *apothecia* convex or orbiculate, terminal on solid, simple, soft footstalks, not bordered.

1. B. *rupestris*, PERS. *Thallus* crustaceous, wrinkled by granulations, pulverulent, of a light greenish ash, sometimes light brown colour; stipes short, somewhat compressed; *apothecia* convex, reddish brown. *Pers. ap. Uster. in ann. d. Bot. St.* 7, *p.* 19. *Ach. L. Un. p.* 573. *Eng. Bot. t.* 373.

On stones and on the ground; common.

2. B. *microcephalus*. *Thallus* filmy, continuous, greyish-white, the border greenish; *apothecia* numerous, minute, nearly globose, reddish brown, nearly black when dry; stipes very short, pellucid.

On the surface of *Hypnum myosuroides*, on Carig mountain, County of Kerry: also on *Jungermannia dilatata*. The patches, rather orbicular, are from one to six inches in diameter, conspicuous as white spots at some distance. When the *thallus* is moistened the greenish *parenchyma* is here and there apparent in points. The surface is uneven from most minute wrinkles. *Apothecia* minute, barely observable with the naked eye, when young almost sessile, of a light reddish brown, translucent and shining even in the dry state, when old and dry they are nearly opaque and black, sometimes two on the same stipes, globose. The *stipes* is scarcely two diameters of the apothecium in length, strangulated in the middle, the upper portion more brown, the lower paler. It has no affinity with any described species with which I am acquainted. The patch at a little distance is very like that of *Lecidea vernalis*, when this occurs investing mosses, but the presence of the stipes and structure of the apothecia, widely different, remove all chance of confusion.

3. B. *furfuraceus*. *Thallus* filmy, investing, whitish; *buds* covering the entire surface as a greenish yellow powder; *apothecia* at length subglobose, brown, immarginate; the disk dark brown; *lamina proligera* thick, nearly colourless. *Calicium furfuraceum. Pers. Tent. Disp. Fung. Supp. p.* 60, *Cal. Capitellatum Ach. L. Un. p.* 241. *Trichia furfuracea Wither. Arr. Mucor furfuraceus, Linn.*

On sandy clay, near Belfast, *Mr. Templeton*. The apothecia at length bared of the buds represent all the characters of a Bœomyces. In the dark brown disk opaque minute *gongyli* exist. Stipes solid, yet less hard at the axis.

4. B. *anomalus*. *Thallus* tartareous, areolate, brownish-grey, edges of the *areolæ* subcrenulate. *Apothecia* convex, with a central depression, brown; stipes immersed in the crust. *Lecanora anomala Ach. L. Un. p.* 381. *Verrucaria Gagei Hook. Eng. Fl. part* 5, *p.* 153. *Lichen Gagei Eng. Bot. t.* 2580.

On stones in woods, and on rocks, County of Kerry; common. Thallus rather thick, cracked into *areolæ*, pale brownish grey, somewhat greener when growing in shade; of a fibrous or columnar structure; the margin of a pale flesh colour. Patches sometimes occur two or more feet in diameter. The surface of the *areolæ* is rough, with elevations and depressions. Apothecia when young immersed, in which state they remain in shaded situations; in more exposed, the apothecia emerge, borrowing sometimes a spurious border from the crust, but which is soon relinquished. On the centre of the apothecia an *umbilicus* is commonly seen, as in others of this genus. The *stipes* remains immersed in the crust.

* * *Apothecia on podetia formed of the thallus.*

5. CENOMYCE. *Ach.* including CLADONIA of *Fée* and PYCNOTHELIA of *Dufour.*

Thallus cartilagineo-crustaceous, or foliaceous, laciniated; *podetia* fistulose, sometimes sterile; *apothecia* hemispherico-subglobose, terminal on the *podetia*, not bordered.

a. Thallus somewhat shrubby, branches subulate.

1. C. *uncialis*, ACH. Podetia aggregated, elongated, smooth, cylindrical, of a pale yellowish-white; the branches short, patent; the axils perforated. *Ach. L. Un. p.* 558. *Eng. Bot. t.* 174. *β. attenuata.* Podetia subdivided at the summits, beset with minute scales. *Ach. L. Un. p.* 559. *Dillen. Hist. Musc. t.* 16, *f.* 22. *H.*

α. common in the mountains. *β.* on the side of Devis mountain, *Mr. Templeton.* The var. *β.* is very remarkable, perhaps distinct. It has never the sulphur-yellow colour of *α.* but is brown, has a very considerable *thallus* of minute lobed scales at the base of the podetia; these have sprinkled over their surface, brownish flattened granular buds, that expand occasionally into minute white scales.

2. C. *rangiferina*. ACH. Podetia erect, elongated, much branched, cylindrical, of a slightly greenish-ash colour; the axils subperforated; the ultimate branches deflexed; *apothecia* subglobose, brown, on small erect stalks. *Ach. L. Un. p.* 564. *Eng. Bot. t.* 173.

On heaths and on mountains; common. Podetia three to five inches. Mr. Templeton found a variety near Belfast, in which the greenish powder of the surface had budded into lobed scales of considerable size, towards the summits of the podetia.

3 C. *furcata*, Ach. Podetia erect, elongated, much branched, of a livid grey, dichotomous; the axils imperforate; the branches, with the apices, divergent; *apothecia* subglobose, dark brown. *Ach. L. Un. p.* 560. *Dillen. t.* 16, *f.* 27. *β. subulata*, podetia elongated, smooth, dichotomous; the axils perforated. *C. furcata, β. Ach. Syn. p.* 276. *Dill. Musc. t.* 16, *f.* 26. A. B. C. *γ. spinosa*, podetia smooth, elongated, at length scaly, whitish-green, at length inflated, curved, branched; branches loose, subsecund. *C. racemosa, Ach. Syn. p.* 275. *Dillen. Musc. t.* 16, *f.* 25.

On heaths and in the mountains; *α.* common. β. and *γ.* near Belfast, *Mr. Templeton.* I do not think the student is to expect to find the varieties above given (in deference to authors) by any means as strictly marked as the characters stated would seem to imply.

b. Thallus foliaceous and scaly.

4. C. *parasitica.* Scales of the *thallus* minute, eroso-lacinulate, glaucous-green, granulato-pulverulent; podetia dilated above, slender, subdivided at the top; *apothecia* conglomerate. *Lichen parasiticus, Hoffm. Enum. Lich. t.* 8, *f.* 5. *Lichen delicatus, Eng. Bot. t.* 2052.

On the edges of dry turf, on heaths, on decaying timber; common. The apothecia are brown, convex, and dimpled on the summit, as in the genus Bœomyces. White granular buds, sprinkled over the surface of the podetia, are observed at length to expand into thallodal scales. A variety occurs on mud walls, near Kenmare, with the scales so densely covered with greenish grains as to form a continuous surface; the apothecia are nearly sessile, and have their border studded with green grains strongly simulating a *Lecanora.*

5. C. *cariosa*, Ach. Scales of the thallus minute, rotundate, irregularly incised, subcrenate; podetia whitish, rough with granular buds, subdivided above; apothecia conglomerate, of a dark purple. *Ach. Lich. Un. p.* 567. *Cladonia cariosa, Eng. Bot. t.* 2761.

On dry banks, near Bantry, *Miss Hutchins.* Not unlike the preceding, of which it may prove only a variety; yet the scales are more rotundate, and far less incised.

6. C. *sparassa*, Ach. Scales pinnato-multifid; podetia cylindrical, branched, of a brownish grey, rough with buds expanding into scales, terminating in cups, which are minute, pervious, and proliferous; *apothecia* clustered, brown. *Ach. Syn. p.* 273. *Eng. Bot. t.* 2362.

On rocks in the mountains, near Dunkerron; not uncommon. The figure of English Botany is deficient of the proper scales of the thallus, and gives only those that germinate from the buds on the podetia. Those scales are sometimes one quarter of an inch in length, incised in a pinnate manner, the laciniæ linear; they are of a pale dull green above, and white beneath. The podetia, where they are not covered with the greyish white powder constituting the buds, are of a brownish flesh-colour, longitudinally striated, often widely split, and usually perforated at the axillæ of the branches. The apothecia are convex, dimpled on the centre.

7. C. *cervicornis*, ACH. *Thallus* erect, fastigiate, the scales branched into lineari-oblong, somewhat crenate, laciniæ; podetia from the disk, dilated and branched above, their margins at length proliferous; *apothecia* minute, marginal, sessile. *Ach. Lich. Un. p.* 531. *Eng. Bot. t.* 2574.

On rocks; near Dunkerron; common. This species grows remarkably tufted, and, contrary to what is usual in the genus, the organs of vegetation bear a great proportion to those of reproduction as to size. The apothecia tinge the portions of the thallus that support them of a reddish-brown colour, but they are themselves almost black; they have occasionally an elevated margin to the disk, not obliterated by the application of moisture. On the cups a glaucous grey powder, constituting the buds, expands into greyish round scales, eventually becoming *thallus.*

8. C. *coccifera*, ACH. Scales of the *thallus* minute, imbricated; podetia cylindraceo-obconical, wide above, mealy, sometimes proliferous; *apothecia* conglomerated or confluent. *Ach. L. Un. p.* 537, and *C. pyxidata. p.* 534. *Eng. Bot. t.* 2051 and *t.* 1393.

On heaths common, *Mr. Templeton.* Acharius himself, in page 534, allows that his *C. pyxidata* differs from his own *C. coccifera* only by the colour of the podetia and of the apothecia. Mr. Templeton found the dark apothecia upon sulphur coloured podetia in specimens collected near Belfast. I have observed, apparently on the same tuft, in our Kerry mountains, the apothecia to vary from bright scarlet to dark purplish-brown. I am not aware how the two species, as given by authors, are to be kept distinct.

9. C. *fimbriata*, ACH. *Thallus* of soft foliaceous scales; podetia from a narrow base dilated into a wide, campanulate, impervious cup, with minute acute teeth, sterile, or with minute dark brown *apothecia. Ach. Syn. p.* 254. *Eng. Bot.* 2438.

On the sides of ditches; common. *Mr. Templeton.*

10. C. *radiata*, ACH. *Thallus* with minute, imbricated scales; podetia elongato-cylindraceous, taper, expanding above into cups, which are irregularly radiated into simple (sometimes subdivided) acuminate shoots, or into very short processes, bearing minute rotundate brownish *apothecia. Ach. Lich. Un. p.* 547. *Eng. Bot. t.* 1835.

On Aghalee bog, near Lough Neagh, *Mr. Templeton.* Mr. Templeton alone has observed this species in Ireland.

11. C. *cornuta*, ACH. *Thallus* with laciniated and crenate scales; podetia, the barren subulate, the fertile cylindraceous, narrower above, tipped with minute scarlet or brownish *apothecia. Ach. L. Un. p.* 545. *Eng. Bot. t.* 1836.

On dry banks; not uncommon. A variety grows in Pigeon Island, in the river Kenmare, tufted; the lower parts of the podetia and scales of the thallus of a tawny colour; the cylindrical portions of the podetia about one-fourth of an inch only in height, and covered throughout with buds, expanding into thallodal scales of a greenish grey colour. Mr. Templeton, on the contrary, has found at Ballygowan bog, near Belfast, the *var. γ. proboscidalis* of *Ach. L. Un.* which is at least five times as great in all its parts.

12. C. *gracilis*, Ach. Scales of the *thallus* minute; podetia elongato-cylindraceous, slender, suddenly expanding at the top into toothed cups, bearing minute brown *apothecia*. *C. ecmocyna, var. γ. gracilis Ach. L. Un. p.* 550. *Eng. Bot. t.* 1284.

At Kilranelagh, County of Wicklow, *Dr. Whitley Stokes*. The podetia are brownish, smooth to the naked eye, yet having buds on the surface, which sometimes expand into a thallodal scale here and there.

13. C. *filiformis*. *Thallus* with minute, imbricated, suberect, divided, and crenate scales; podetia elongated, filiform, simple, scaly, scarcely dilated at the top, bearing minute scarlet *apothecia*. *Lichen filiformis, Huds. Fl. Ang. p.* 552. *Eng. Bot. t.* 2028. *Cenomyce bacillaris Ach. Syn. p.* 266.

On the mountains, near Dunkerron; common. In all the foreign specimens I have seen, the colour was (I suppose through age) of a dark brown.

14. C. *bellidiflora*, Ach. Scales of the *thallus* scarcely any; podetia thick, elongated, cylindraceous, rough with buds expanding into thallodal scales, which are thickly set, laciniated, and crenate, scarcely dilated above into cups; *apothecia* convex, conglomerate, confluent. *Ach. Syn. p.* 270. *E. Bot. t.* 1894.

Near Belfast, on the mountains; *Mr. Templeton*. The buds at first swell into pale greenish-grey globules, which presently expand into thallodal scales. The colour of the apothecia is described by authors as scarlet, but in Mr. Templeton's specimens they are of a dark purplish-brown, proving, with what has been observed of other foregoing species, that the brightness of the colour of the apothecia is little to be depended on in this genus as a discriminating mark.

c. Thallus subcrustaceous.

15. C. *Papillaria*, Ach. *Thallus* subcrustaceous, uniform, granulated, greyish; podetia erect, the young ventricose, simple, smooth, the older branched, all of them white; *apothecia* globose, brown. *Ach. Lich. U. p.* 571. *Dillen. t.* 16, *f.* 28.

On heaths, near Belfast, *Mr. Templeton;* common in the South of Ireland.

* * * *Apothecia on the sublinear branches of a suberect thallus.*

† *Apothecia internally pulverulent.*

6. SPHÆROPHORON. *Ach.*

Thallus crustaceo-cartilaginous, branched, suberect, solid. *Apothecia* subglobose, terminal, exteriorly formed of the thallus, enclosing a black powdery mass, bursting with a torn margin.

1. S. *coralloides*, ACH. *Thallus* cartilaginous, shrub-like; *apothecia* when young globose. *Ach. L. Un. p.* 585. *Eng. Bot. t.* 115. *β. fragile;* thallus densely cæspitose, branches short, naked. *Ach. L. U. p.* 585. *Eng. Bot. t.* 2474. *γ. compressum;* thallus compressed; old apothecia flat. *Ach. L. Un. p.* 586. *Eng. Bot. t.* 1541,

On rocks in the mountains; common. The variety γ. at first appears to be distinct, but I have found the flattened apothecia with a subreflexed border upon a thallus quite cylindrical, supposed peculiar to the two first. There is a state of this species deserving of notice, with the *thallus* very short, white, cæspitose, with the erect branches tipped with roundish, shining, greenish-dun coloured bodies, less in diameter than the branches, which open, at length, on their summits, turn black, and emit, on pressure, a semitransparent mass of aggregate points.

† † *Apothecia interiorly solid.*

1. *Apothecia turbinate, at length globose.*

7. STEREOCAULON, *Ach.*

Thallus dense, nearly woody, branched, and shrub-like, or crustaceous. *Apothecia* stalked, turbinate, solid, marginate, at first plane, at length hemispherico-globose, their margin evanescent.

1. S. *paschale*, ACH. *Thallus* greyish, branched, granulato-fibrillose, the branches crowded and much divided; *apothecia* scattered and terminal, at length convex, conglomerate, waved, blackish-brown. *Ach. L. Un. p.* 581. *Eng. Bot. t.* 282.

On rocks in the mountains; common. A dwarf variety occurs at Blackwater, County of Kerry, which answers to the characters of *S. botryosum, Ach.*

2. S. *Cereolus*, ACH. METH. *Thallus* tartareous, in clustered, convex, sublobate, rugged, greyish-white warts, on a brownish substratum. *Podetia* short, of the substance of the substratum, covered with thallodal granules. *Apothecia* black, very convex, somewhat shining. *Ach. Meth. p.* 316, *t.* 7, *f.* 1. *L. Un. p.* 582. *Borrer in Eng. Bot. Supp. t.* 2667.

On rocks, near Dunkerron. The substratum, where thickest, is cracked; it sometimes rises in blackish-brown subrotund masses above the thallus: these are not to be confounded with young apothecia, which have a more polished surface. The disk is rather thick, opaque, and black; the *lamina proligera* of a horny transparency, very pale, brown, striated. The sooty brown warts observable among the scales of the thallus being many times in diameter that of the full grown apothecia, their rugged surface, and, above all, their internal structure, show their functions to be different. The *stipes* is sometimes branched; and the apothecia occasionally so minute as to be scarcely distinguishable by the naked eye.

2. *Apothecia discoid.*

a. Thallus compressed.

8. EVERNIA. *Ach.*

Thallus cartilagineo-subcrustaceous, branched and laciniated, or compressed and subangulate, densely fibrous within. *Apothecia* orbiculate, with an inflexed, thallodal border, the disk concave, coloured.

1. E. *prunastri*, ACH. *Thallus* suberect, brownish-grey, much branched; the laciniæ plane, lineari-attenuate, rugoso-lacunose; *apothecia* marginal, concave, their disk of a bright brown, their border slender, inflexed, almost entire. *Ach. L. Un. p.* 442. *Eng. Bot. t.* 859.

On trees; near Belfast, *Mr. Templeton;* near Bantry, *Miss Hutchins;* near Killarney, *Mr. G. S. Gough.* The buds are marginal circular eruptions of the *thallus*, pouring out a greyish glaucous powder; such may also be observed exteriorly on the border of the apothecia.

9. RAMALINA. *Ach.*

Thallus cartilaginous, branched and laciniated, compactly cottony within; *apothecia* orbiculate, bordered, the disk as well as the border of the substance of the *thallus*, and of one colour.

1. R. *fraxinea*, ACH. *Thallus* flat, rugoso-lacunose, of a whitish-grey, glabrous on both sides, the segments lineari-lanceolate, attenuated; *apothecia* large, submarginal, plane, of a pale brownish-flesh colour. *Ach. L. Un. p.* 602. *Eng. Bot. t.* 1781.

At the Hill of Howth, *Mr. Templeton;* not uncommon in Kerry. Mr. Templeton found a state in which the marginal buds were expanding into new fronds. The buds are oblong, often confluent eruptions of the thallus emitting a grey powder.

2. R. *polymorpha*, ACH. *Thallus* compressed or taper, laciniato ramose, of a pale ash colour, longitudinally lacunose; *buds* scattered or terminal, subelliptical; *apothecia* submarginal and terminal, at length convex and dark brown. *Ach. L. Un. p.* 600. *Hooker Brit. Flor. part.* 5, *p.* 224.

Near Belfast; *Mr. Templeton.* Mr. Templeton's plant is linear in all its branches, without any appearance of buds or *soredia*, and the apothecia when aged remarkably convex, wrinkled, and of a purplish-brown.

3. R. *fastigiata*, ACH. *Thallus* erect, somewhat compressed, smooth, lacunose, whitish-glaucous, the branches thickened upwards, fastigiate; *apothecia* terminal, sessile, at length plane or convex. *Ach. L. Un. p.* 603. *Eng. Bot. t.* 890.

On trunks of trees; frequent. On stones at the sea-side, Derriquin, County of Kerry. The variety termed *calicaris* by Hudson has the branches linear and acuminate, bearing sometimes short spur-like *laciniæ*.

4. R. *scopulorum*, ACH. *Thallus* compressed greenish-white, or greyish-brown, somewhat polished, sublacunose, the branches linear attenuated; *apothecia* scattered, sessile. *Ach. L. Un. p.* 604. *E. Bot. t.* 688.

On maritime rocks near Howth; *Mr. Templeton.* Our Irish plant differs from that collected by Dr. Greville, in the Isle of Bute, with which he has obliged me, by the broader thallus, which is more brown, and, when aged, rough with oblong pale *buds*, that have each a pit on their summits, scattered over the surface; the disk, too, is less coloured.

5. R, *farinacea*, ACH. *Thallus* erect, pale glaucous-grey, subcompressed, sublacunose, the *buds* (soredia) round, marginated by the *thallus*; the branches attenuated; *apothecia* scattered, on short stalks, of a pale buff. *Ach. L. Un. p.* 606. *Eng. Bot. t.* 889.

On trees; near Belfast, *Mr. Templeton.* A variety occurs at Dunkerron, with the disk quite concolorous with the thallus, without any shade of the buff colour. The segments of fertile fronds are wider than the others.

6. R. *pollinaria*, ACH. *Thallus* submembranaceous, smooth, pitted, greenish-grey, branched, laciniated, *buds (or soredia)* roundish, marginate, or elongate and marginal, consisting of a greyish-glaucous powder; *apothecia* nearly terminal, at length dilated and margined. *Ach. L. Un. p.* 608. *Eng. Bot. t.* 1607.

On trees; near Belfast, *Mr. Templeton.*

b. Thallus cylindrical.

10. USNEA, *Ach.*

Thallus cartilagineo-crustaceous, cylindrical, hollow, enclosing a central thread. *Apothecia* orbiculate, entirely formed of the *thallus*, and of the same colour.

The central thread is tougher than the enclosing cylindrical thallus; this, cracking transversely into elongated beads, sometimes gives origin to an articulate variety. The *buds* (or *soredia*) arise on the stem and main branches as minute white points, enlarge, break at the top, and disclose a cancellated base; the cells contain a powder which developes young acuminate cylindrical shoots. The accident of more expansion of the buds on one plant above another, even in the same tuft, sometimes yields a closely pinnate appearance, giving origin to another variety. When growing pendulous, the branches are more lax and elongated, and the ultimate divisions capillaceous, which is a source of another variation.

1. U. *plicata*, ACH. *Thallus* pendulous, smooth, pale; the branches loose, much divided, subfibrillose, the ultimate ones capillaceous; *apothecia* plane, broad, ciliated; the *cilia* slender and very long. *Ach. L. Un. p.* 622. *Eng. Bot. t.* 257. *β. hirta;* nearly erect, scabrous with *buds*. *Ach. L. Un U. plicata, δ. hirta, p.* 623. *Eng. Bot. t.* 1354. *γ. barbata;* thallus articulate. *Ach. L. Un. p.* 624. *Eng. Bot. t.* 258, *f.* 2. *δ. florida;* thallus nearly erect, horizontally and closely pinnate. *Ach. L. Un. p.* 620. *Eng. Bot. t.* 872.

On aged trees and bushes; also on rocks. Mr. Templeton found δ. near Belfast; γ. grows on the sand hills at Portmarnock, near Dublin; the others are common.

11. ALECTORIA, *Ach.*

Thallus cartilaginous, the branches subfiliform, subfistulose, cottony within. *Apothecia* orbiculate, thick, marginate, at length convex and losing the border, entirely formed of the *thallus*, and of the same colour.

1. A. *jubata*, ACH. *Thallus* tufted, pendulous, much branched, olive-brown, shining. *Apothecia* of the same colour as the *thallus*, at length convex, the margin entire. *Ach. L. Un. p.* 592. *Eng. Bot. t.* 1880.

On rocks at Knockcurris, in Innishowen, *Mr. Robert Brown.* At Lough Bray and the Killiney Hills. I quote the apothecia from Acharius, having never seen them. The *buds* are remarkable for their size, being wider than the stems; they contain a glaucous powder.

12. CORNICULARIA, *Ach.*

Thallus cartilaginous, branched, nearly solid, cottony within. *Apothecia* orbiculate, obliquely peltate, entirely formed of the substance of the *thallus*, and of the same colour.

1. C. *tristis*, ACH. *Thallus* branched, nearly erect, shining, compressed, rough on the edges with blackish *buds;* branches fastigiate; *Apothecia* flattish, deep-brown, the margin rough with buds. *Ach. L. Un. p.* 610. *Eng. Bot. t.* 720.

On the higher mountains; not uncommon. Tufts half an inch high, very rigid. The degree of expansion of the buds gives the apothecia more or less of a radiate appearance at the margin.

2. C. *aculeata*, ACH. *Thallus* tufted, rigid, of a dark chesnut colour, much branched, compressed, lacunose at the angles, the branches flexuose, divaricated, spinulose at the ends; *apothecia*

reddish-brown, the margin prickly, subreflexed. *Ach. L. Un. p.* 612. *Eng. Bot. t.* 452.

Near Belfast, *Mr. Templeton.* On the mountains in the South; common.

3. C. *lanata*, Ach. *Thallus* decumbent, tufted, brownish-black, shining; the branches slender, flexuose, round: *apothecia* reddish-brown. *Ach. L. Un. p.* 615. *Eng. Bot. t.* 846.

Near Belfast, *Mr. Templeton.* On the mountains in the South; common. The apothecia have not yet been found in Ireland.

(. Apothecia without footstalks. * Apothecia, tubercles, immersed.

13. Verrucaria, *Persoon.*

Thallus crustaceous, or cartilagineo-membranaceous, uniform. *Apothecia* subglobose, partly immersed, of a different colour and substance from the *thallus*, enclosing a *nucleus*, the *apex* papillose, usually perforated.

The limits between this genus and *Endocarpon* are not very strict; still the freedom beneath of the margins of the lobes seems to present a natural character to the latter.

1. V. *nitida*, Schrad. *Thallus* cartilaginous, continuous, smooth, pale, brown, somewhat pellucid, with minute pale elevations of the cuticle, swelling about the apothecia; *apothecia* thickly set, globose, half immersed, black. *Schrad. Journ. for* 1801, *Fasc.* 1, *p.* 79, *Borrer in Eng. Bot. Supp. t.* 2607, *f.* 1.

On the bark of trees; common. The pale dots or elevations of the cuticle are sometimes, though rarely, wanting. The crust is apt to be thickened towards the edges, forming a kind of border. The surface has a greasy appearance. The *perithecium* passes under the *nucleus.*

2. V. *dermatodes*, Borr. *Thallus* filmy or cartilaginous, continuous, smooth, shining, white slightly suffused with red, swelling about the apothecia; *apothecia* hemispherical, black, half immersed. *Borrer in Eng. Bot. Supp. t.* 2607, *f.* 2.

Near Bantry, *Miss Hutchins.* On holly especially, also on oak at Askew wood, near Sneem. In contact with other lichens it throws out a dark brown limit to the thallus. The *perithecium* is deficient below the *nucleus.* The apothecia are not half the size of those of the preceding: the thallus shining and without any pale dots strewed over the surface. Hitherto, this species is limited to the South of Ireland.

3. V. *conferta.* *Thallus* between powdery and tartareous, black, very thin, not limited; *apothecia* crowded, large, black, rough, bursting up from under the cuticle of the bark of the tree on which it grows.

On birch, at Askew Wood; County of Kerry. The size of the apothecia rivals that of *V. nitida;* the patch is often much larger. It has the habit of certain *fungi*, that commence existence under the cuticle of the bark; hence, that which to a casual observer might appear a white filmy thallus, is nothing more than the cuticle of the tree; from under it the apothecia burst out of splits, the cuticle peels off, and at length exposes the dark brown or black thallus, of the same colour as the apothecia. These have a minute opening on their summits. The *perithecium* is deficient below the *nucleus*. The *nucleus* when moist is pale, semitransparent, and gelatinous; and contains imbedded in its substance several terete, lanceolate cellules, nearly opaque, and darker than in any of the congeners.

4. V. *cinerea*, Pers. *Thallus* grey, brownish or olive, membranaceous, smooth, continuous, or broken into minute scales; *apothecia* subhemispherical, raising up the *thallus* at their base, black, minute. *V. cinerea, Persoon in Ust. Ann Fasc.* 7, *p.* 28, *t.* 3, *f.* 6. A. *according to Acharius, Lich. Un. p.* 276, *under V. stigmatella; Eng. Bot. t.* 1891.

On the smooth bark of ash, &c. at Dromore, County of Kerry. A variety on holly at Askew Wood has the thallus of a tawny peach-blossom colour, and the apothecia, of very different sizes, scattered rather thinly. The *perithecium* is deficient below the *nucleus*, although the contrary seems represented in English Botany. This species varies by the colour of the thallus, by the size of the apothecia, even on the same patches, by their greater or less aggregation, by their summits being sometimes imperforated, and at others the pores being very wide, by the surface of the apothecia being polished or wrinkled. Specimens occur in our woods so intermediate between this species and *V. epidermidis, Ach.* that I know not to which they should be referred. To *V. epidermidis, Ach.* Mr. Borrer unites *V. analepta* of the same author; to which again Acharius joined *V. olivacea* of Persoon. Between this last and *V. rhyponta, Ach.* Mr. Borrer observes that Mr. Lyell had discovered a Verrucaria nearly intermediate both as to thallus and apothecia. Acharius distinguishes *V. punctiformis, Pers.* from his own *V. analepta*, principally by its globose nucleus; a character, however, which he informs us, in the same page of his *Lich. Universalis*, to be of little importance: Sir James Smith relied more on the widely umbilicated appearance of the apothecia not noticed by Acharius; but then he states in *Eng. Bot.* that he thought he could trace the various appearances of Acharius's own specimens of *V. punctiformis* to his own *V. analepta*. I own that, of the four following numbers, I am unable to say whether they are good species or not. I give the specific characters of authors.

5. V. *epidermidis*, Ach. *Thallus* very thin spreading, cream-coloured; *apothecia* black, very minute, roundish, convex, the circumference depressed, with an hemispherical point in the centre. *Ach. Syn. p.* 89. *Hooker Eng. Flor. vol.* 5, *p.* 149. *β. analepta; thallus* olive-coloured inclining to coppery; *apothecia* elevated, hemispherical, scattered, black, with a central dot. *V. analepta, Ach. Syn. p.* 88. *Hook Eng, Flor. v.* 5, *p.* 149. *Eng. Bot. t.* 1848.

On birch, near Bantry, *Miss Hutchins*. Near Belfast, *Mr. Templeton;* both *α* and *β*.

6. V. *punctiformis*, Pers. *Thallus* determinate, very thin, smooth, continuous, rusty-brown; *apothecia* very minute, black, hemispherical, umbilicated. *Ach. Syn. p.* 87. *Hook. Eng. Flor. vol.* 5, *p.* 150. *Eng. Bot. t.* 2412.

On oaks, at Dromore, County of Kerry.

7. V. *olivacea*, PERS. *Thallus* determinate, filmy, continuous, or slightly cracked, roughish, olive-black; *apothecia* prominent, hemispherical or somewhat conical, black, slightly rugose, the thallus rising about their base or investing the whole surface. *Borr.* ——. *Pers. in Ust. Ann. Fasc.* 7, *p.* 28. *Eng. Bot. Supp. t.* 2596, *f.* 1.

Near Belfast, *Mr. Templeton;* on oaks at Dromore, County of Kerry. Elms, at Dunkerron.

8. V. *rhyponta*, ACH. *Thallus* roundish, filmy, continuous, roughish, as if minutely flocculose, black; *apothecia* very minute, prominent, hemispherical, black. *Borr.* —. *Ach. Syn. p.* 89. *Eng. Bot. Supp. t.* 2597, *f.* 2.

On alder at Dunkerron, County of Kerry.

9. V. *gemmata*, ACH. *Thallus* indeterminate, white, between powdery and filmy, thin, nearly continuous, nearly smooth; *apothecia* large, prominent, hemispherical, scattered, naked or invested with a thin film. *Ach. Lich. Un. p.* 278. *Eng. Bot. Supp. t.* 2617, *f.* 2.

On ash at Dunkerron; County of Kerry; near Belfast, *Mr. Templeton.* The *perithecium* is deficient below the *nucleus.* A large and conspicuous species and by no means uncommon.

10. V. *biformis*, BORR. *Thallus* indeterminate, filmy, continuous, or sparingly cracked, slightly rugose, smooth, or somewhat powdery, greyish-white. *Apothecia* small, prominent, hemispherical, pruinose or naked. *Borr. in Eng. Bot. Supp. t.* 2617, *f.* 1.

Near Belfast, *Mr. Templeton.* On oaks at Dromore, on box at Ardtully; not uncommon. Thallus usually indeterminate, yet, in contact with the thallus of other lichens or of itself, throwing up a black border sometimes in a continuous line, at others of minute dark points arranged closely in lines. The patches seldom exceed an inch in breadth, but are often longer. Apothecia numerous, distinctly visible to the naked eye, subglobose, elevated, minutely umbilicated, brownish-black, somewhat rough, the young raising up the cuticle of the thallus, through which they finally burst, the older often open by rupture or by widening of the *umbilicus.* The *perithecium* passes under the base of the *nucleus.* The *V. niveo-atra Eng. Bot. Supp. t.* 2637, *f.* 1. I find on old elms at Dunkerron, but then the perfect *lirellæ* of an Opegrapha uniformly accompany it.

11. V. *byssacea*, ACH. *Thallus* very thin, whitish, filmy, of minute roundish cells, continuous; *apothecia* minute, globose, rough, half-immersed, pertused or entire, naked. *Ach. Lich. Un. p.* 294.

On elms at Ardtully, on oaks at Dromore, County of Kerry. The cells of the thallus appear to be formed of fibres at the surface, interlacing or netted. The border is evanescent. The apothecia very minute, not to be distinctly seen at the distance of an arm's length, somewhat rugose, occasionally with a depressed opening on the summit, of different sizes, the older falling off and removing a portion of the film of the thallus with them. Acharius says, the minuteness of the apothecia prevented his detecting the nature of the nucleus, but that all appeared to him black within. However, the nucleus is pale, whitish, semitransparent, greatly swelling by moisture, consisting of numerous upright filaments with granular matter interposed; the *perithecium* passes under the *nucleus*.

12. V. *lencocephala*, Ach. *Thallus* filmy, somewhat powdery on the surface, very thin, grey, investing; *apothecia* prominent, subcylindrical, brownish-black, when young crowned with a white powder consisting of *gongyli*, when old naked. *Ach. Lich. Un. p.* 286. *Eng. Bot. Supp. t.* 2642, *f.* 2.

On bark of aged trees, near Killarney; on moss in the shaded crevice of a rock at Carig mountain, County of Kerry. What the characters of the *Cyphelium* of Acharius are, I am not aware, having no opportunity of consulting the Stockholm Transactions for 1817; but of the propriety of removing this species out of the genus *Verrucaria*, I think, there can be little doubt. I can find no *nucleus*, but from the aperture on their summits the apothecia discharge a cloud of simple diaphanous cylindrical bodies whose length is about four times their breadth; their collection on and outside of the apothecia has a pale flesh colour.

13. V. *rupestris*, Schrad. *Thallus* whitish, continuous, thin, arenaceo-scabrid, with a limit of a cream colour; *apothecia* numerous, small, immersed, aperture marginate, smooth, entire, at length wide. *Schrad. Spicileg. p.* 109, *t.* 2, *f.* 7, *according to Acharius in Lich. Un. p.* 284. *Eng. Bot. t.* 1711, *the figure not good.*

On limestone at Dunkerron; common. The thallus is whiter, thicker, the apothecia are larger and less thickly set than in the succeeding. When the thallus is moistened it assumes a greenish tinge which under the lens is seen to arise from a number of green points thus made visible. The apothecia are rather loose in their respective cells, and their black perithecium borrows a thin covering from the thallus that closely invests it.

14. V. *immersa*, Hoffm. *Thallus* greyish-white, continuous, thin, pulverulento-scabrid, with a black limit; *apothecia* numerous, immersed, thickly set, minute, their aperture immarginate, rough, cracked. *Hoffm. Pl. Lich. t.* 12, *f.* 2—4.

On limestone, near Belfast, *Mr. Templeton;* at Dunkerron common. In this, as in the preceding, the *perithecium* passes under the *nucleus.* The apothecia are more minute, more rough, somewhat split on their summits, and fit the cavities of the thallus less loosely. The *thallus* is less rough, less white, and scarcely alters its hue by the application of moisture. On meeting other lichens it throws up a black border.

15. V. *concinna*, Borr. *Thallus* determinate, very thin, tartareous, continuous, even, grey, somewhat pruinose; *apothecia* of a middle size, prominent, hemispherical, umbilicate, black. *Borr. in Eng. Bot. Supp. t.* 2623, *f.* 1.

On limestone, near Killarney ; *Sir T. Gage.* This is given in the words and on the authority of *Mr. Borrer.* I have never seen it.

16. V. *elæina,* Borr. *Thallus* thin, investing, tartareous, somewhat cracked about the apothecia, smooth, slightly tumid about the bases of the apothecia, very slightly greenish-grey when dry, greenish-olive when moist, with a thin, pale, cream-coloured border; *apothecia* small, nearly immersed, black, subhemispherical, with a wide pore. *Borr. under Eng. Bot. t.* 2623, *f.* 2. *Eng. Bot. t.* 2455.

Near Belfast, *Mr. Templeton ;* near Bantry, *Miss Hutchins ;* at Blackwater Bridge, County of Kerry. The change of colour by application of moisture is very remarkable. It often forms patches of a foot in breadth, the thallus closely investing the stone.

17. V. *lævata,* Ach. *Thallus* thin, tartareous, cracked, even, dusky grey or brownish, with a thin black *substratum ; apothecia* small, partially emerging, subhemispherical, irregular, rough, black. *Ach. Lich. Un. p.* 284. *Eng. Bot. Supp. t.* 2623, *f.* 2.

On siliceous rocks ; common in the County of Kerry. It is the first lichen that plants itself on the clean newly fractured surfaces of the siliceous rocks in the County of Kerry. It varies much in the colour of the thallus. This is minutely cracked ; the cracks black. The apothecia have their bases partially covered with the elevated thallus ; they are irregular in shape, with or without a pore, conical or flattened, sometimes imparting a black tinge to the thallus in contact, and are somewhat rough on the surface.

18. V. *plumbea,* Ach. *Thallus* tartareous, minutely cracked, uneven, lead coloured, with rather a swollen border, edged with black; *apothecia* immersed, globose, black. *Ach. Lich. Un. p.* 285. *Eng. Bot. t.* 2540. (*the apothecia too large.*)

On limestone, near Belfast; *Mr. Templeton.* Dunkerron, Kerry. The *perithecium* passes under the pale *nucleus.* It is sometimes brownish or mouse-coloured. The apothecia are papillated or porous on their tops, which emerge usually but little out of the thallus.

19. V. *viridula,* Ach. *Thallus* rimoso-areolate, uneven, of a dusky green; *apothecia* half-immersed, black, rather smooth, subglobose, with a pore on the summit, of a middle size. *Ach. Lich. Un. p.* 675.

On sandstone, near Belfast, *Mr. Templeton.* It does not appear that any good figure of this species has been yet given, and never having seen an authentic specimen, I think some doubts may be entertained whether Mr. Templeton's plant above defined, should be referred to the Acharian, from the character of whose apothecia it recedes in having the emerging part convex not conical.

20. V. *muralis,* Ach. *Thallus* indeterminate, thin, scattered, between leprous and tartareous, pale grey; *apothecia* prominent, subglobose, rough, umbilicated. *Ach. Lich. Un. p.* 288. *Borr. in Eng. Bot. Supp. t.* 2647, *f.* 2.

On the old walls of Dunkerron castle; and on maritime rocks. The *perithecium* passes under the *nucleus*. Apothecia when growing on mortar usually partially immersed. The thallus sometimes evanescent, yet like a whitish stain on the rock: the *nucleus* pale brown, gelatinous when wet. The tops of the apothecia often shining, though minutely wrinkled.

21. V. *lithina*, Ach. *Thallus* thin, tartareous, areolato-rugose, greyish-green; *apothecia* minute, partially immersed in the elevated portions of the thallus on which each is placed, brownish-black; pore on their summits marginate, often wide. *Ach. Lich. Un. p.* 287.

On shaded siliceous rocks at Derriquin, County of Kerry. The thallus may be considered as divided into numerous, minute, tumid, wrinkled tartareous scales, so closely joined that the surface seems continuous, yet under the lens it appears areolate and the scales themselves are sometimes split; greyish-green when dry, greener when moist; having a thin faint white border. Apothecia each on a proper portion of the thallus, globoso-conical, umbilicate, evenly scattered, very minute, yet distinct to the naked eye. *Nucleus* pale, gelatinous when moist, and then protruding out of the pore. *Perithecium* passing under the *nucleus*.

22. V. *epipolæa*, Ach. *Thallus* indeterminate, leproso-tartareous, thin, somewhat powdery, greyish-white; *apothecia* large, sessile, hemispherical, black, papillose or porous, somewhat pruinose. *Ach. Lich. Un. p.* 285. *Eng. Bot. Supp. t.* 2647, *f.* 3.

On limestone at Dunkerron; common. The thallus usually suffused with a reddish hue, slightly and minutely cracked, but when thin continuous. Apothecia among the largest in this genus, often one-fifteenth of an inch, roughish. *Nucleus* globose, minute, shrivelled when dry, when moistened swelling, filling the cavity of the perithecium, pale, hyaline; contained in a proper, whitish, closely investing tegument. The *perithecium* does not pass beneath the *nucleus*. The apothecia slightly immersed beneath the surface.

23. V. *Dufourii*, De Cand. *Thallus* determinate, subtartareous, arenaceo-pulverulent on the surface, of a dusky greenish-grey, continuous; *apothecia* large, subsessile, hemispherical, black, porous on the summit; *nucleus* with a proper black *perithecium*. *De Cand. Fl. Fr. ed.* 2, *v.* 2, 318. *Eng. Bot. t.* 2791, *V. pyrenophora*, *Ach. L. Un. p.* 285.

On limestone rocks, and on the walls of Dunkerron castle, County of Kerry. Patch from one to six or seven inches in breadth, conspicuous by the evenly scattered large apothecia. The thallus has a narrow dark brown or black limit, more evident in contact with other lichens; by moisture the surface becomes greener; this arises from (as seen by a lens) the parenchymatous green substance becoming more visible among the minute greyish grains of the superior layer; when dry the surface appears harshly-powdery as if sanded; beneath the green layer is another more compact and white. Apothecia immersed by about one-fourth of their entire height below the surface of the thallus and penetrating slightly the limestone beneath; having a very faint swelling of the thallus about their base; hemispherical, with a decided pore, and sometimes two or three pores on their summit, rather rough, prominent, large as poppy seeds, sometimes larger. The *nucleus* moistened is gelatinous, semitransparent, of a pale flesh-colour. It is contained in a proper black tegument that completely envelopes it; but quite distinct from the broader, thicker, hemispherical *perithecium*, which is deficient below the *nucleus*. This structure shows our species to be very different from *V. epipolæa*, *Ach.* with which alone it can be confounded, and associated with which it is found often on the same wall or rock: besides it has never a reddish suffusion of the crust so common in the other; but when we consider that the thallus is determinate, scarcely cracked, and the remarkable pores of the apothecia, there remains but little doubt. From *V. rupestris* Schrad. the prominence of the apothecia, their internal structure, their comparatively slight immersion, and darker colour of the thallus will keep ours separate.

24. V. *trachona*, ACH. *Thallus* indeterminate, thin, between pulverulent and tartareous, continuous or slightly cracked, greyish-green; *apothecia* small, prominent, nearly globose, pruinose, at length deformed. *Borr. Eng. Bot. Supp. t.* 2647, *f.* 1. *Ach. Lich. Un. p.* 286.

On rocks, near Bantry, *Miss Hutchins*. On rocks in Askew wood, county of Kerry. I have given Mr. Borrer's specific character. There are, as appears to me, two or three states of this lichen to which the marks do not well apply. In one from Askew wood, the thallus is more compact, and the apothecia larger, and more denuded, than represented in *Eng. Bot.* In another in the same wood, and on similar rocks, the thallus when moist appears to consist of very scattered scales not forming a continuous surface, yet the apothecia are usually quite covered with them, and appearing when dry as if varnished over. In a third variety from Blackwater Bridge, the apothecia are so minute as scarcely to be visible to the naked eye, while the thallus is more pulverulent, and very like the figure in *Eng. Bot.* In the first of these states the *perithecium* passes under the pale gelatinous globose, *nucleus*. The thallus is sometimes brownish, the *pruina* of the apothecia absent.

25. V. *maura*, ACH. *Thallus* thin, tartareous, minutely cracked, deep brownish-black; *apothecia* minute, globose, nearly immersed, porous or entire at their tops. *Ach. Lich. Un. p.* 291. *Eng. Bot. t.* 2456.

On maritime rocks of all kinds, common. Young thalli forming on limestone are of a dark olive colour, and have a very distinct though narrow whitish border. The *perithecium* passes beneath the *nucleus*, which I do not find blackish as stated by Acharius but pale, of a horny transparency, and gelatinous when moistened.

26. V. *umbrina*, ACH. *Thallus* scarcely determinate, thin, tartareous, minutely cracked, of an olive-black; *apothecia* half immersed, conico-convex, papillose or porous on the summit, black. *Ach. Lich. Un. p.* 291. *Eng. Bot. t.* 1499.

On siliceous stones and rocks in the Dargle River. Acharius defines the *nucleus* to be "cinereo-nigricans," or blackish-grey, but in our specimens the *nucleus* itself is pale, semitransparent, and gelatinous when moist, yet it is not readily discoverable, being enveloped in a black crust. A variety on walls and on limestone at Dunkerron has the thallus compact, and the apothecia oftener conical; which, I suppose, is the β. *nigrescens* of Acharius, and *V. nigrescens* of *Eng. Flor. v.* 5, *p.* 155.

27. V. *acrotella*, Ach. *Thallus* thin, dispersed, plano-granulate, of an olive-brown, sometimes nearly wanting; *apothecia* minute, at length thickly set, convex, papillose or porous on the summit, roughish, black. *Ach. Meth. Lich. p.* 123. *Eng. Bot. t.* 1712, (*the young state.*)

On flints, near Belfast, *Mr. Templeton.* On Carig mountain, County of Kerry. Acharius, in his *Lich. Univ. p.* 293, appears to have been imperfectly acquainted with this species, and hence has made it a variety of the *V. striatula* of Wahlenberg, from whose description of the thallus that of ours widely recedes: the *nucleus* is whitish, semitransparent, and gelatinous when moist, and has no *perithecium* passing under it. Mr. Templeton's specimens on flint have the apothecia nearly twice as large as in the common appearance in our mountains; the apothecia, too, while destitute often of any *thallus* adhering, yet have much black matter, similar to that of their perithecium, around their bases.

28. V. *polysticta*, Borr. *Thallus* of minute tartareous, very thin, crowded, angular, even, whitish scales, upon a thick rimose, black substratum; *apothecia* minute, immersed, at length slightly emerging, plano-convex above, the pore obsolete. *Borr. in Eng. Bot. Supp. t.* 2741.

On the old walls of Dunkerron Castle. Our plant has the apothecia more frequently dimpled; in all other respects it entirely corresponds with Mr. Borrer's specimens.

29. V. *rubiginosa*. *Thallus* indeterminate, subtarareous, very thin, smooth, slightly cracked, of a pale olive-grey, on a black substratum; *apothecia* very minute, hemispherical, the thallus rising about their base, their tops depressed, with a wide pore, of a rust colour.

On siliceous rocks at Blackwater, County of Kerry. The black substratum is perceptible through the cracks of the thallus; the cracks are not continuous. The apothecia, not visible distinctly to the naked eye, in many instances seem sessile on proper circular portions of the thallus; their pore is wide; the *nucleus* pale, semitransparent, and gelatinous when moist, beneath which the rust coloured perithecium does not pass. This species has some affinity to *Lecidea rupestris* in a young state, but the generic character is very different and very distinct; the *thallus*, too, is more even and smooth: besides, the *Lecidea* is confined to calcareous rocks or mortar.

30. V. *irrigua*. *Thallus* indeterminate, when moist of a greenish-grey or olive-brown, and subgelatinous, when dry very slightly cracked, filmy towards the edges; *apothecia* of a middle size, thickly set, hemispherical, minutely papillose, pale-reddish, pellucid when moist.

On siliceous rocks, occasionally inundated; at the Dargle river, County of Wicklow: faces of rocks over which water trickles at Carig mountain, County of Kerry. Patches from 1 to 8 or 10 inches in breadth. Thallus subtartareous, closely investing the surface of the rock, somewhat powdery on the surface when dry, slightly cracked about the apothecia, swelling and becoming somewhat translucent by moisture. Apothecia prominent, distinctly visible; when dry, appearing concolorous with the thallus; when moistened, swelling, translucent, pale-reddish, with a dark brown *papillula* on their summits, through the centre of which is a most minute pore. The *perithecium* does not pass beneath the *nucleus;* this is pale, gelatinous, and semitransparent when moist, and exhibits a multitude of cylindraceous vesicles fascicled together, and of different diameters, some being apparently six or eight times that of others. This species seems to have some, though but little, affinity with *V. submersa. Borr.* but the colour and structure of the apothecia are widely different, however apparent the similitude of their crusts.

31. V. *fissa.* *Thallus* tartareous, indeterminate, thin, cracked, uneven, of a tawny dark brown, the cracks black; *apothecia* rather large, hemispherical, dark brown, porous, smooth, each on a raised portion of the thallus.

On large siliceous stones, occasionally inundated, in a stream at Carig, County of Kerry. Thallus on being moistened becomes swelled, of a dirty greenish-yellow colour, and somewhat gelatinous; the cracked portions resemble distinct scales, but the edges of the thallus are entire, and, becoming thinner and thinner, are closely applied to the subjacent surface. The thallus is sometimes stained here and there blackish; this, with the blackness of the splits, would lead to the supposition of a black substratum, but which is not to be traced more distinctly. Apothecia at first appear as minute black specks in the centres of the *areolæ,* pierced with a pore discoverable with a microscope: at length the fertile *areolæ* swell, and form a base to each apothecium, which is large as poppy seed, and has a blackish somewhat marginate pore on the summit. The thallus rises very considerably about the apothecia: a vertical section of the apothecia shows, under this thallodal covering, a brownish perithecium, not passing beneath the *nucleus;* which, however, is enclosed in a transparent and colourless tegument, and is itself of a pale green colour, gelatinous and hyaline. This lichen has a strong affinity with the genus *Endocarpon,* but the thallus is entirely crustaceous, not scaly. The appearances of the dissected apothecia, the thicker and decidedly cracked thallus, keep this species distinct from the two preceding, which likewise select an aqueous situation.

32. V. *gemmifera.* *Thallus* determinate, tartareous, powdery on the surface, of a bluish-grey, with a brownish-black limit, areolate, edges of the circular (*soredia or*) *buds* whitish; *apothecia* minute, half immersed, rounded or conical above, shining, black, dimpled.

On siliceous rocks, Dunkerron Mountain; not uncommon. By moisture the thallus becomes greenish-grey: the fissures between the *areolæ* are dark brown, as is the limit, which also is thicker than the thallus; hence, probably, there is a dark brown *substratum:* the surface is rough with a coarse powder. The *buds* or *soredia* occur near the edges of the thallus ; they are roundish, usually single, sometimes confluent openings with a white border, and containing a greenish-grey powder, darker than the hue of the thallus ; they are also sprinkled with a white *pruina*. Apothecia, when saturated with moisture, just visible to the naked eye ; they are of different sizes, more rugged and irregular towards the centre of the patch : their *umbilicus* is sometimes so wide as to cause them to assume the appearance of *patellulæ*. *Nucleus* pale, transparent, gelatinous when moist, having points and elongated cellules dispersed through its substance, and the black thick *perithecium* passing under it. In old age the thallus sometimes is raised in serpentine ridges, with dark-brown or blackish *sinuses* between. The very young thallus has a whitish surface. The *apothecia* of *Lecidea confluens* are sometimes found on the *thallus*.

33. V. *epigæa*, Ach. *Thallus* indeterminate, thin, gelatinous when moist, cracked, the fissures with raised edges, of a very pale yellowish-brown ; *apothecia* with a minute pore, globose, immersed, black. *Ach. L. Un. p.* 295. *Eng. Bot. t.* 1681.

On the ground, near Belfast, *Mr. Templeton ;* at Killiney, near Dublin. The thallus is nearly tartareous, somewhat raised about the apothecia, and there of a deeper brown. The depression on the surface of the apothecia, is the orifice of a short duct, (like the neck of a bottle), to the globular *perithecium* which passes under the *nucleus*. The apothecia swell remarkably when moist, and are large though concealed in the thallus. Acharius says the apothecia are black within ; but I find the *nucleus* pale, whitish, semitransparent, and swelling when moistened.

34. V. *obscura*, Borr. Mss. *Thallus* cartilaginous or tartareous, black-edged, undulated, olive-brown, smooth, cracked, the *areolæ* usually tumid ; *apothecia* deeply immersed, their tops at length oval, elliptical or linear ; often crowded, or closely arranged in slightly curved lines. *Borr. Mss. Lichen obscurus, Eng. Bot. t.* 1752.

On the barks of old trees ; also on rocks near the shore at Derriquin, County of Kerry. This species does not come accurately under any described genus, perhaps better under *Verrucaria* than any other, yet the top of the apothecia sometimes resembles a *patellula*, and at others a *lirella ;* but the nucleus, pale and gelatinous when wet, is always deeply immersed in the thallus.

35. V. *circumscripta*. *Thallus* thin, tartareous, whitish-ash coloured, unaltered when wet, pruinose, with minute linear elevations towards the edges, at length minutely cracked, with an olive-brown border ; *apothecia* minute, immersed, pruinose, mostly confluent in lines.

Near Bantry, *Miss Hutchins ;* on shaded rocks, County of Kerry. The thallus is minutely cracked, principally about the centre ; the border is somewhat silky. Patches seldom exceed one inch in diameter, yet several contiguous individuals form a more extended map-like appearance ; the thallus is interiorly of a greenish yellow. This species is closely allied to the preceding, differing by the thallus, whose surface is even, not broken up at any period into tumid warts, and is pruinose even in a young state, while *V. obscura* appears pulverulent only in old age, when the tough brownish cuticle has been worn away. The pruinose tops of the tubercles are likewise distinctive. Yet the analogy is strong in the relative position and apparent confluence of the tops of the apothecia. The *nucleus* seems destitute of a coat, is oblong, pale brownish, semitransparent, gelatinous when wet, and studded with minute points. The apothecia are placed upright, and not inclined in various directions as in *Porina.*

36. V. *peripherica.* *Thallus* tartareous, finely pruinose, white, rather thick, cracked in the centre, the border broad, smooth, tinged with flesh colour; *apothecia,* numerous, black, globular, half immersed, occurring about the periphery.

On siliceous rocks, Carig Mountain, County of Kerry. The broad white peripheries of imperfect circles sometimes three to four inches, at others two to three feet in diameter, studded with minute, contrastedly black apothecia, render this species easy to be recognised. The central portions are wanting to the thallus, or replaced by other lichens, while the existence of the individual is continued as a slowly increasing wave on the surface of the rock. Apothecia on the newer parts of the thallus, perhaps less than poppy seeds in size, numerous, not crowded, black, not shining, half emerging, globular, with a nipple on the summit, which dropping, leaves a pore. *Perithecium* thick, black, passing beneath the *nucleus,* which is globular, semitransparent, pale brown, consisting of numerous cellules, among which are other larger, longer, darker, slightly curved, transversely striated cells, concatenated into cylindrical bodies, attached to the base of the *perithecium.*

37. V. *umbrosa.* *Thallus* thin, subtartareous, brown or olive, determinate with a black edge; *buds* conspicuous in elevated, minute, flattish collections of ochraceous granules; *apothecia* black, rough, numerous, not crowded.

On shaded rocks, County of Kerry and elsewhere; not uncommon. The brick coloured buds or *soredia,* constantly present, at once denote this species. The thallus swells with moisture; it closely invests the rock; its surface is rather rough and uneven. The buds are dispersed or irregularly crowded, and are not unlike the supposed apothecia of *Spiloma gregarium.* The apothecia are roundish or oblong, flattish, slightly sunk in the thallus, rough with irregular depressions above, as if the surface were ruptured. The *perithecium* is coal black, rather thick and hard; beneath is an irregular rather shallow *nucleus,* slightly brownish, transparent, gelatinous, containing elongated cellules as well as some of a round form: this *nucleus* or *lamina* rests on a thick black layer, or, perhaps, we may be justified in saying that the *perithecium* passes beneath the *nucleus.* The apothecia are rare, in different specimens they vary much in size.

38. V. *mollis.* *Thallus* subtartareous, soft, powdery, or minutely granulate, rusty brown, finely cracked into minute flat heaps; indeterminate; with a thin, black, substratum; *apothecia* very minute, numerous, irregularly aggregated, black, not polished.

On rocks, on the summit of Carig, County of Kerry. To the naked eye the apothecia are scarcely visible, and the thallus would seem little more than an efflorescence of rust on the surface of the rock. Viewed with a lens, on the nearly filmy thallus, minute flattish lighter coloured elevations are observable; the thallus is not altered by moisture; the *substratum* appears between the cracks and at the edges of the thallus. The apothecia are immersed, somewhat rugose: the *perithecium* passes beneath the *nucleus*, and is entirely filled with it; yet the *nucleus* seems also enclosed in a proper hyaline slightly brown tunic: it is globose, and consists of white transparent gelatine, in which numerous opaque points or cells are observable under a high power of the microscope. The thallus, cut into, exhibits a layer of green parenchymatous matter beneath the brown surface.

39. V. *erysiboda*. *Thallus* subtartareous, very thin, uneven with granulations, very minutely cracked, indeterminate, of a pale rust colour; *apothecia* prominent, rather large, hemispherical, dark rusty brown when dry, pellucid and fiery brown when wet; pore minute; *perithecium* deficient beneath the *nucleus*.

On rocks, on the summit of Carig, County of Kerry. The moistened thallus, when cut, presents a layer beneath the surface of a lively yellowish-green colour: granulations distinct or confluent are not unusual towards the centre. The apothecia are easily distinguished by the naked eye, of a duskier brown than the thallus: the *perithecium* is thick, dark brown, pellucid when wet, not passing beneath the *nucleus*; its minute pore is apparent by transmitted light: the *nucleus* is large, globose, and has a distinct pale tunic within the *perithecium*: its lower half lies beneath the surface of the thallus; it is semitransparent, whitish, gelatinous, and contains a multitude of longitudinal cells, placed side by side. The present species differs from *V. rubiginosa* by the rusty hue of the surface, which, too, is cracked, by the want of a *substratum*, by the larger apothecia, and by their minuter pore. It selects dry situations, but *V. rubiginosa* where water trickles.

14. ENDOCARPON, *Hedw.*

Thallus cartilaginous or foliacious, often lobed; *apothecia* globose, enclosed in the thallus, with a marginated, dusky perforation at the apex, enclosing a *nucleus*.

The inferior edge of the thallus being free, i. e. not adherent, seems to indicate a natural character to distinguish this from the preceding *genus*; however unsatisfactory, it is still less so than any difference in the structure of the apothecia, on which, however, Acharius laid the greatest stress.

1. E. *miniatum*, ACH. *Thallus* foliaceous, coriaceous, subumbilicated, orbiculate, lobed, smooth beneath, olive grey or greenish; *apothecia* numerous, their pores minute. *Ach. L. Un. p.* 301. *α. umbilicatum;* nearly simple. *Eng. Bot. t.* 593. *β. complicatum*, cæspitose, polyphyllous, the lobes imbricated, erect. *E. complicatum, Ach. L. Un. p.* 303. *γ. aquaticum*, cæspitose, polyphyllous, the lobes imbricated, the middle con-

volute, the exterior spreading and cut. *E. Weberi, Ach. L. Un. p.* 304. *Eng. Bot. t.* 594.

α. on dry rocks; β. on rocks occasionally inundated or bedewed; γ. usually on submersed stones. The two first varieties are common, the third was found by *Mr. Robert Brown,* on Knockcurris, in Innishowen, according to *Mr. Templeton.* The union of the three Acharian species is adopted from Dr. Hooker, in his English Flora, vol. 5, p. 156. In the first variety, the flesh coloured globular nucleus, contained in a coat somewhat less transparent, is surmounted by a minute convex, light brownish covering, (appearing on the surface of the frond,) which is rather papillary than porous; although when moist an irregular opening may be observed. In the other varieties the appearances on dissection are similar; the tops of the apothecia, however, are darker.

2. E. *pusillum,* Hedw. *Thallus* in minute, scattered, subcartilaginous, flat, greenish-grey, rotundo-angulate and slightly lobed scales, adhering by dense, pale fibres beneath; *apothecia* 4, 5, or more, on each scale, the orifice porous, dark brown. *Hedw. St. Cr. v.* 2, *p.* 56, *t.* 20, *f.* A. *Eng. Bot. t.* 595. *E. Hedwigii, Ach. Lich. Un. p.* 298.

On wet sides of ditches, at Dunkerron, County of Kerry. Scales about one twentieth of an inch in diameter; when dry almost white, when moistened greenish-grey, or even of a lively green. *Nucleus* pale, gelatinous, large in proportion to the size of the scale; the orifice of the apothecia, a pore with a brownish margin.

3. E. *lachneum,* Ach. *Thallus* in lobed and imbricated, subcoriaceous, slightly-greenish brown scales, the margins elevated and waved; dark brown beneath; *apothecia* numerous, with convex, light brown tops. *Ach. Lich. Un. p.* 299. *Eng. Bot. t.* 1698. *E. squamulosum, Ach. L. Un. p.* 299.

On rocks in mountain streams, at Carig mountain, County of Kerry. The edges of the thallus are far more free and elevated than in the preceding, the colour never becomes quite green by moisture, but still retains much of its brown hue; the thallus swells less when wet, and the apothecia are more numerous. The *nucleus* is slightly of a flesh colour, otherwise the structure of the apothecia is as in *E. pusillum, Hedw.*

4. E. *pallidum,* Ach. *Thallus* foliaceous, somewhat imbricated, lobed, crenate, pale greenish-grey, slightly spongy and black beneath, the outermost lobes pale and naked on the under side; *apothecia* immersed, black. *Smith.* ——. *Ach. L. Un. p.* 301. *Eng. Bot. t.* 2541.

" On rocks thinly covered with earth, Ireland, *Sir Thomas Gage.*" I have never seen an authentic specimen of this species; it is here given on the authority of *Sir James E. Smith.*

5. E. *leptophyllum,* Ach. *Thallus* cartilagineo-foliaceous, roundish, of a dark-grey, the circumference spreading, flexuose, smooth and blackish beneath; *apothecia* numerous on each

scale, with dark brown orifices. *Ach. Lich. Un. p.* 302. *Eng. Bot. t.* 2012, *f.* 2.

On slate rock, near Bantry, *Miss Hutchins.* Thallus whitish-grey, also dark-grey, turning brownish, especially about the orifices of the apothecia when moist; its scales thick, sometimes imbricated, somewhat ascending, and foliaceous; in other specimens placed side by side so closely and so flat as to resemble an areolate crust: beneath, the scales are dark brown or blackish, except at the very edges, which are paler. Orifices of the apothecia without any depression, (as occurs in *E. pusillum.*) dark brown: the *nucleus* colourless, hyaline, in a tegument slightly opaque. The Irish plant described I suppose to be that intended by Acharius.

6. E. *rufo-virescens.* *Thallus* of minute, flattish, often scattered, roundish, pale yellowish-green scales, with whitish edges, and white beneath; *apothecia* usually solitary, their orifices large, brownish, flat when dry.

On rocks, in the South of Ireland; not uncommon. The thallus is liable to vary in having the scales so closely set, as to appear like an areolate crust with blackish cracks; the edges of the scales are sometimes raised, subcrenate, and slightly flexuose: when moist the colour is of a lively green, which, under the lens, appears contrasted with the reddish-brown orifices of the apothecia; these are large, often half as wide as the scales on which they are set, and flattened as patellulæ; in old age becoming dark brown. The *nucleus* is somewhat flattened, transparent, and gelatinous, very slightly brownish; but by moisture it swells so as to show a convex surface on the scales; it then much resembles the *patellula* of certain *Lecideæ,* having a brownish disk and a striated colourless horny *lamina proligera.* Mr. Harriman's specimens of *E. smaragdulum, Ach.* appear to me so nearly allied to this species that I think it probable future observations may identify them. At present, however, this last plant appears to have the apothecia usually numerous on each scale; the scales themselves more lobed, and of a tawny colour, scarcely altered by moisture; their substance thicker, their edges deflexed.

7. E. *sulphureum.* *Thallus* of minute, roundish or angulate, closely set, uneven, granulato-rugose sulphur coloured scales, sometimes bursting out with sulphur coloured minute *buds; apothecia* numerous, with prominent, subglobose, pale tops.

On rocks at Kilceanagh mountain, County of Kerry. A species by no means rare in the South of Ireland, but the apothecia I have found only in the locality named. In its commoner state it is covered over with buds concolorous with the sulphur coloured thallus. The scales are usually thickly set, uneven with tumid elevations, by mutual pressure representing somewhat an areolate crust; sometimes, however, their lobed and slightly crenate margin is observable. The inferior surface is nearly of the same colour as the superior. The apothecia, though usually but one on each scale, are still numerous; they are globose, half immersed; their *perithecium,* which does not pass under the *nucleus,* hemispherical, paler than the thallus, with a pore on the summit, through which the moistened hyaline gelatinous *nucleus* is visible; this under the lens is found to be quite globose, and not large as in the rest of the genus, but more of the proportionate size of that of a *Verrucaria*, under which, perhaps, this species may as well be arranged as under *Endocarpon*. The patches are sometimes a foot or more in diameter.

8. E. *pulchellum* Hook. *Thallus* of foliaceous, thin, smooth, greenish-grey, lobed scales, the lobes rounded, with elevated, incurved edges, at length sprinkled with granular buds; the under side pale brown, fibrous; *apothecia* globular, immersed, their summits prominent, black, with a central pore. *Hooker Eng. Flor. v.* 5, *p.* 158. *Borr. in Eng. Bot. Supp. t.* 2602, *f.* 1.

On the bark of trees, on mosses, more rarely on rocks; very common in the South of Ireland. *Mr. Templeton* detected it near Belfast in 1806. As the involute rim of the thallus unfolds, it leaves concentric marks on the scales; these are seldom more than the tenth of an inch in diameter; they often bear greenish granular clusters of buds, are sometimes imbricated, and slightly greenish white, when wet of a glaucous green. When moist the tops of the apothecia appear as semiglobose, black prominences; on dissection the *nucleus* is found to be covered by a black *perithecium* enclosing it altogether: within this is a pale tegument containing the colourless gelatinous *nucleus*, in which are seen numerous cylindrical bodies at the periphery, pointing to, but not reaching the centre. It is frequently found with apothecia in woods and on mosses in the mountains.

9. E. *læte-virens*, Hook. *Thallus* of foliaceous, thin, smooth, roundish, light green scales, with shallow, rounded lobes beneath; free, elevated, and naked at the edges, fibrous at the centre, white. *Hook. Eng. Flor. v.* 5, *p.* 158. *Borr. in Eng. Bot. Supp. t.* 2658, *under Vermcaria.*

On turf, near Belfast, *Mr. Templeton:* near Bantry, *Miss Hutchins.* On Carig Mountain, County of Kerry. The young thallus is in concave cups, with white edges, placed side by side and in contact; their edges entire; of the older, lobed. No apothecia have been observed.

10. E. *fuscellum*, Ach. *Thallus* of minute, adpressed, closely set, angular, slightly-brownish-grey scales, on a black, thick, cracked substratum; *apothecia* very minute, their orifice dark brown, flat, slightly prominent. *Ach. Lich. Un. p.* 675. *Eng. Bot. t.* 1500.

On the mortar of old Dunkerron Castle, County of Kerry. The edges of the scales are nearly black, truly elevated, and hence, even in the moistened state, the scales are concave. The *nucleus* of the apothecia is pale or very slightly brownish, gelatinous, and semitransparent when wet.

15. Porina, *Ach.*

Thallus cartilagineo-membranaceous, uniform. *Apothecia* verruciform, formed of the thallus, usually many-celled, each cell containing a *nucleus*, and opening by a coloured, often distorted perforation above.

1. P. *pertusa*, Ach. *Thallus* cartilagineo-membranaceous, grey, smooth; the warts of the *apothecia* crowded, subglobose, with many dark, depressed points. *Ach. Lich. Un. p.* 308. *Eng. Bot. t.* 677.

Near Belfast, *Mr. Templeton.* In Askew Wood, County of Kerry. Thallus very thin towards the edge, which is whiter: by moisture it becomes somewhat gelatinous and semitransparent. The orifice or pore of the apothecia is dark brown or black, beneath which the *nucleus*, of a pale brownish flesh colour, is elongato-ovate, deeply immersed. The internal structure of the *nucleus* noticed by Acharius is remarkable, for among a mass of pellucid filiform and punctiform bodies occur a few others oblong, very wide, and with double teguments.

2. P. *ceuthocarpa*, Hook. *Thallus* tartareous, continued, cream-coloured, tessellated, unequal, smooth, border dark-olive, zonate; warts of the *apothecia* tumid, globose, smooth, with black, depressed points. *Hook. Eng. Flor. v.* 5, *p.* 160. *Eng. Bot. t.* 2372. *Isidium microsticticum. Turn.* and *Borr. Lich. Brit. p.* 94.

On slate rocks, near Bantry, *Miss Hutchins. Sir Thomas Gage.* South of Ireland; not uncommon.

3. P. *fallax*, Ach. *Thallus* cartilagineo-tartareous, rugose, grey, or greenish-grey; warts of the *apothecia* crowded, irregular; pores large, oblong, distorted, bordered, blackish. *Ach. Syn. p.* 110. *Lich. Un. p.* 310.

On old trees near Belfast, *Mr. Templeton.* Askew Wood, County of Kerry: also on rocks, Dunkerron Mountain. The wide, cylindrical, opaque vessels, with their pellucid coats, among the fibres and granules of the *nucleus* are very remarkable.

4. P. *isidioides*. "*Thallus* thick, tartareous, frustuloso-areolate yellowish-brown; *apothecia* small, globose, pale, immersed in tumid, roundish warts, except the darker, slightly prominent apex." *Verrucaria isidioides, Borr. in Eng. Bot. Supp. t.* 2622, *f.* 1. *Pertusaria isidioides, Hook. Eng. Flor. v.* 5, *p.* 160.

Rocks at Glengariff, near Bantry, *Miss Hutchins.* This is given on the authority of Mr. Borrer. I have never seen it. Can it be a state of *Pertusaria ceuthocarpa?*

16. Thelotrema, *Ach.*

Thallus cartilaginous, membranaceous, or subcrustaceous; *apothecia* verruciform, formed of the thallus, hollowed, marginated, containing a *nucleus* within a membranaceous *perithecium*, beneath a coloured disk.

1. T. *lepadinum*, Ach. *Thallus* cartilagineo-membranaceous, whitish or glaucous-green; warts of the *apothecia* subconical, their margin inflexed, *perithecium* membranaceous; disk pruinose, flesh-coloured or dark brown. *Ach. L. Un. p.* 312. *Eng. Bot. t.* 678.

On the bark of trees, common; also on siliceous rocks. The characters given of *T. melaleucum, Turn.* and *Borr.* seem to apply to states of this species, which varies in the colour of the thallus, in its tenuity, in the degree of inflection of the thallodal margin of the warts, in the elevation of the warts, as well as in the lighter or deeper colour of the disk. In the rock variety, the γ. *scutelliforme* of Ach. the thallus is often much dispersed into white, tartareous, lobed, and crenate scales; these, as well as the exterior shell of the apothecium, are cancellated and rough with minute points and depressions; the *nucleus* is whitish, semitransparent, and gelatinous when wet, having erect bundles of filiform cells, whose summits, protruding above the disk, constitute the pruinose appearance; among these cells may be seen most minute dark points. In all states of this species occasionally two and even three *nuclei* may be seen within the same wart.

2. T. *exanthematicum,* Ach. *Thallus* subtartareous, very thin, continuous, grey; warts of the *apothecia* half immersed, hemispherical, with a radiated orifice; the disk concave, flesh-coloured. *Ach. L. Un. p.* 313. *Eng. Bot. t.* 1184.

On limestone, near Belfast, *Mr. Templeton;* common in the South. The surface of the thallus often has a sanded appearance.

3. T. *Hutchinsiæ,* Borr. " *Thallus* very white, warts of the *apothecia* crowded, obsolete, of irregular figure, at length expanding with a broken, flocculose, inflexed orifice; the *nucleus* forming a dark, grey, pruinose, concave disk, with a white, lacerated margin." *Borr. in Eng. Bot. Supp. t.* 2652.

On moss, near Bantry, *Miss Hutchins.* The disk is greenish-grey, covered with white *pruina,* concave; the *nucleus,* nearly colourless, pellucid, gelatinous, deep, and round beneath, is contained in cortical matter, indurated into a membrane, rising above the surface of the disk and forming the characteristic mark of the *genus.* The structure of the apothecia of *Thelotrema lepadinum* is very different.

* * *Apothecia, (lirellæ,) sublinear.*

17. Syncesia.

Thallus crustaceous. *Apothecia* oblongo-elongate, stellato-radiate, aggregated and immersed in scattered thallodal *verrucæ. Perithecium* none. *Lamina proligera* pellucid, supported on opaque vertical layers.

However averse to offering a new genus among the lichens, I found it impossible to arrange the present under any described. It approaches *Arthonia* in character but not in habit. It bears to *Arthonia* the relation of *Porina* to *Verrucaria,* but is still more distinct by the presence of opaque immersed *stipites* to the apothecia: these plates appear to have a fibrous structure in a vertical direction: they remind one of the blackish brown matter on which the *lamina proligera* of certain *Lecanoræ* and *Lecideæ* rest.

1. S. *albida.*

On dry shaded rocks between Dunkerron and Killarney, County of Kerry. Thallus from five to eight inches in diameter, tartareous, thin, usually scattered in rough, uneven, flattish, irregular, sub-confluent portions, exhibiting the face of the rock on which it grows in the interstices: sometimes the central portion of the *thallus* is continuous, areolate, and of a very pale flesh colour, but the surface is more commonly whitish and powdery; within, the thallus is of a pale greenish-yellow: it is somewhat radiated towards the margin, which is uninterrupted all round, fibrous or silky, of a dusky olive-brown. The surface is not altered when moistened. The *verrucæ* or receptacles are subrotund, larger than rape seed, elevated, rather evenly scattered, the larger nearer the centre: on their tops the lens discovers stellato-radiate, pruinose gyrations, which are the disks of the apothecia; the *lamina proligera* is pale brown, pellucid, striated, but without any distinct tegument, yet the disk is somewhat opaque. The *apothecia* stand on the edges of vertical plates, which are opaque, dark brown, or almost black, plunged in the white cortical matter of the *verrucæ*. The cylindrical vessels that cause the *laminæ* to appear vertically striated often have their summits emerging above the disk. The *lamina* in old age drops off, when the surface of the singular supports remains black, and of the original figure of the apothecia.

18. ARTHONIA, *Ach.*

Thallus crustaceous or cartilagineo-membranaceous, uniform. *Apothecia* roundish, elongated or varying in form, nearly plane, not bordered, within somewhat gelatinous, covered by a dark membrane.

1. A. *impolita*, BORR. *Thallus* subtartareous, cracked, uneven, greyish-white, indeterminate; *apothecia* immersed, flat, somewhat confluent, brownish lead-coloured, pruinose. *Borr. in Eng. Bot. Supp. t.* 2692, *f.* 1.

On trees at Cledaneanure, County of Kerry. The surface of the thallus is powdery: single apothecia rounded or oblong, with their edges raised, and with a thallodal covering; surrounding the apothecia there are usually cracks of the thallus.

2. A. *lurida*, ACH. "*Thallus* obsolete, continuous, smooth, dull-lead-coloured or brownish; *apothecia* sessile, roundish, slightly convex, reddish-black." *Borr. in Eng. Bot. Supp. t.* 2692, *f.* 2.

On box, in a shaded grove, at Ardtully, County of Kerry. I have given the specific character from English Botany, yet I confess I cannot detect the thallus on my specimens; on the contrary, the apothecia plainly emerge from under the cuticle of the bark on which it grows, indicating the habit of a *Fungus;* and yet I have found cylindrical bodies, acuminated at each end within the apothecia, corresponding to *Gongyli.*

3. A. *Swartziana*, ACH. *Thallus* membranaceous, thin, whitish; *apothecia* roundish, repand, irregular, confluent; their disk, black, rough. *Ach. Lich. Un. p.* 142. *Eng. Bot. t.* 2079.

On bark, near Belfast, *Mr. Templeton;* Askew Wood, County of Kerry. Varies in the colour of the thallus from whitish, through cream-coloured and yellowish, to brownish, as in Mr. Templeton's specimens; varies, too, in having the surface nearly entire or cracked into scales.

4. A. *ilicina*. *Thallus* membranaceous, thin, smooth, whitish or cream-coloured, at length breaking into contiguous scales, with a thin, brownish border; *apothecia* large, angulate, or oblongo-subrotund, flat; the disk black, often cracked, with a narrow thallodal border when dry.

On old stems of holly in woods at Killarney; not rare. The patches are usually considerable in size, sometimes three or four inches in diameter, closely investing the bark. The breadth of the border to the thallus varies, but is always distinctly marked in contact with other lichens. The apothecia, by no means crowded, are yet remarkable, from their size, being sometimes nearly a line in diameter; they are half immersed, when wet they swell, become convex and prominent; they have no proper margin; their disk is black; their *lamina proligera* of an olive brown, semitransparent, and showing vertical *striæ*. Perhaps, this may prove to be only a state of *A. gyrosa, Ach.*—this last, however, is smaller in all its parts, the apothecia are more numerous, and more confluent, and their margins appear irregularly incised—or, as Acharius defines them, "*gyroso-rugosi,*" of which there is not the least appearance in our plant.

19. OPEGRAPHA, *Ach.*

Thallus crustaceous, membranaceous or leprous, uniform. *Apothecia* oblongo-elongated, immersed or sessile, covered by a dark membrane; the disk black, narrow, with a proper border.

1. O. *epipasta*, ACH. *Thallus* membranaceous, very thin, somewhat determinate, shining, grey or pale copper-coloured; *apothecia* minute, immersed, scattered, slightly convex, short, mostly simple, with a very narrow border. *Ach. L. Un. p.* 258. *Eng. Bot. t.* 40, *scarcely t.* 1828.

On lime trees, near Belfast, *Mr. Templeton.*

2. O. *atra*, PERS. *Thallus* membranaceous, very thin, smooth, grey, olive-grey, or pale ferruginous; *apothecia* subsessile, the smaller punctiform or globose, the larger elongated, narrow, somewhat wrinkled, flexuose, coal-black, simple or divided. *Pers. in Ust. Ann. fasc.* 7. *p.* 30, *f.* 2. C. *c. according to Hook. in Eng. Flor. v.* 5, *p.* 145. *Eng. Bot. t.* 1753; *also t.* 1347 *and t.* 1789.

On the bark of trees; common: rarely on rocks, as at Dunkerron Mountain. Specimens occur on ash trees, at Dunkerron, so exactly intermediate that I do not think they can be more strictly referred to *O. rufescens, Pers.* than to the present species: but the former is by no means rare on oaks and other trees in the South of Ireland; it is even to be observed on siliceous rocks. This plant varies by the colour of the thallus, its thinness, its continuity, or being occasionally broken into little scales, by the length of the apothecia, by their dispersion, by their confused or stellulate aggregation.

3. O. *vulgata*, Ach. *Thallus* leprous, somewhat coarsely powdery, with minute scales, greenish-white; *apothecia* sessile, the longer somewhat terete, subrugose, smooth, with a narrow disk. *Ach. Lich. Un. p.* 255. *Eng. Bot. t.* 1811.

On stems of old trees; near Belfast, *Mr. Templeton*: on the stems of furze, near Dunkerron, County of Kerry. The variety on furze has the thallus thin, investing, smooth, and shining, nearly white. Mr. Templeton found it with the *lirellæ* scarcely longer than they are broad, with the thallus powdery, and of a buff colour, inclining to green.

4. O. *varia*, Pers. *Thallus* thin, leprous, powdery, greyish-white; *apothecia* sessile, prominent, various in length, the disk wide, flat, at length convex, the margins at length disappearing. *Pers. in Ust. fasc.* 7, *p.* 30, *according to Hooker*, *Eng. Flor. v.* 5, *p.* 145. *Eng. Bot. t.* 1890 *and t.* 2280. *O. notha, Ach. L. Un. p.* 252.

On the bark of aged trees; not uncommon. The shape of the disk of the apothecia seems at first to distinguish this from the preceding, but unfortunately in the former it is occasionally very wide, and in the present as narrow as, perhaps, in any other *Opegrapha.*

5. O. *saxatilis*, De Cand. *Thallus* tartareous, thin, powdery, white, sometimes evanescent; *apothecia* sessile, prominent, often in small clusters, varying in length, the margins flexuose. *De Cand. Fl. Franc. v.* 2, *p.* 312. *Eng. Bot. t.* 1790.

On rocks, on walls, and on mortar; not uncommon. On limestone the thallus has sometimes a reddish hue, and the *lirellæ* are extremely narrow. On siliceous slate in maritime situations there is no vestige of a thallus, but a whitish discolouration of the surface of the rock; the *lirellæ* are jet black, shining, and clustered. Again, on mortar, as at Kilbarrick Church, near Dublin, the thallus is tartareous, thick, slightly cracked, snow white, somewhat powdery on the surface, and the *lirellæ* as densely clustered as in *O. atra.* Future observations may confirm the conjecture that the present is but a rock variety of the preceding. +

6. O. *scripta*, Ach. *Thallus* membranaceous, thin, smooth, greyish or greenish white; *apothecia* immersed, flexuose, their disk very narrow, having a spurious thallodal border. *Ach. Method. Lich. p.* 30. *Graphis scripta, Ach. Lich. Un. p.* 265. *Eng. Bot. t.* 1754 *and t.* 2301.

On the bark of old trees; not uncommon. The thallus is usually smooth, yet sometimes much wrinkled, thick and powdery on the surface. The apothecia vary in length, and have their disk sometimes pruinose: the thallodal whitish border to the *lirellæ* distinguishes this from all the preceding, and the distinct black margins to the disk in a great measure from the following.

7. O. *dendritica*, Ach. *Thallus* subtartareous, determinate, somewhat powdery, white; *apothecia* immersed, flexuose, branched; the disk flat, with a border from the thallus only.

Ach. Meth. p. 31. *Graphis dendritica, Ach. L. U. p.* 271. *Eng. Bot. t.* 1756. *β. rupestris. Thallus* thin, olive-coloured, pruinose, thallodal margin of the *lirellæ* white; *apothecia* minute, elongated, branched.

α. on trees common. *β.* on siliceous rocks, at Carig Mountain, County of Kerry.

8. O. *sulcata*, Pers. *Thallus* membranaceous, subtartareous, subrugose, subdeterminate, of a brownish-grey; *apothecia* black, large, emerging, at length prominent, tumid, the disk narrow, the border tumid, with two or three longitudinal grooves, each surmounted by a film of the thallus. *Persoon MSS. according to Mugeot and Nestler, in Cr. Vog.* —— *Rhen. No.* 360.

On holly; near Belfast, *Mr. Templeton.* Killarney woods, common. Thallus from three to four inches wide, closely investing the bark near the border, where, on meeting other lichens, it throws up a black edge; sometimes the thallus is cracked, and always uneven, with minute elevations or wrinkles. Apothecia larger than in any other British species, mostly simple, though often much bent, raising up a film of the thallus on each side as they emerge; the disk narrow, the border thick, tumid, and having two, three, and, more rarely, four grooves on each side; the tops of the ridges displaying each a longitudinal scale from the thallus. The *lamina proligera* has a black disk, but is itself gelatinous, pale, semitransparent when wet, striated with erect linear cellules. This species is allied by the thallus to *O. elegans* of *Smith*: the structure of the *lirellæ*, however, is very distinct.

* * * *Apothecia discoid, round, sessile, ~~or~~ at length emerging.*

† *Thallus (in a moist state) gelatinous.*

20. COLLEMA, *Ach.*

Thallus homogeneous, gelatinous when wet, when dry, hard and cartilaginous, sometimes foliaceous. *Apothecia* orbiculate, (rarely on podetia), bordered, formed entirely of the thallus.

* *Thallus somewhat crustaceous.*

1. C. *nigrum*, Ach. *Thallus* crustaceous, sooty black, cracked, with minute, imbricated, inciso-crenate lobes, the border bluish; *apothecia* scattered, minute, black, at length convex, and their border evanescent. *Ach. L. U. p.* 628. *Eng. Bot. t.* 1161.

On limestone; common: on sandstone, near Belfast, *Mr. Templeton.*

* * *Thallus broadly lobed over the whole surface, imbricated, plaited, spreading, very turgid when wet.*

2. C. *fragans*, Ach. *Thallus* suborbicular, olive black, the lobes ascending, crowded, somewhat round, thick-edged, cre-

nate; *apothecia* of a tawny brown, with a thick, subcrenate, olive border. *Ach. Syn. p.* 311. *Eng. Bot. t.* 1912.

On the ground at the Dargle River, County of Wicklow; *Dr. Whitley Stokes.* Near Bantry, *Miss Hutchins.* Our specimens differ from the Eng. Bot. figure and description only in having the lobes more deeply crenate, the crenulations tumid, and the apothecia large, irregular, their disk waved and brownish.

3. C. *cristatum*, HOFFM. *Thallus* thick, olive-black, compact; lobes imbricated, incised, dentate, erect, those of the circumference depressed; *apothecia* flattish, depressed, large, dark reddish brown, the margin nearly entire. *Hoffm. Fl. Germ. p.* 101. *C. pulposum.* γ. *cristatum, Ach. L. U. p.* 633. *Jacq. Coll.* 3, *t.* 12, *f.* 1.

On mortar, and on the soil: near Belfast, *Mr. Templeton*: at Dunkerron, County of Kerry.

4. C. *synalissum*, ACH. *Thallus* with obovate, thick, entire, rather concave lobes, glaucous green when fresh, olive-brown when dry, covered with closely set, substipitate, round or oblong buds. "*Apothecia* minute, aggregate, obovate, concolorous, their disk depressed, collected into substipitate knobs." *Ach. L. Un. p.* 640.

On a sand bank, near Belfast, *Mr. Templeton*; County of Derry, *Mr. D. Moore.* Our specimens are destitute of *apothecia*; in all other respects they accord with the Acharian description.

5. C. *glomerulosum*, ACH. *Thallus* minute, subrotund, brownish-black, coriaceous, with tumid processes, scattered; *apothecia* immersed on the tops of the processes, minute, concave, brownish-black. *Ach. L. Un. p.* 641.

On the bark of young ash at Roughty, County of Kerry. Thallus in dispersed cushions scarcely as large as peas; it alters very little its hue or its size by being wet; rough with protuberances on the surface: affixed by a central spot, free beneath at the edges, easily detached; dissected it appears a coriaceous sac, with irregular processes, containing within much pale subfibrous matter. Apothecia consisting of nearly uniform opaque dark-brown matter. This cannot be confounded with any other described British species. Acharius states the apothecia to be sessile, but dissection shows this appearance to arise from a slight contraction of the process of the thallus beneath the apothecium.

6. C. *limosum*, ACH. *Thallus* subeffuse, lobes appressed, thick, slightly crenulate, almost evanescent in drying; *apothecia* immersed, the disk reddish-brown, the margin somewhat prominent, nearly entire. *Ach. L. Un. p.* 629. *Eng. Bot. Supp. t.* 2704, *f.* 1.

On wet clay. Near Belfast, *Mr. Templeton*; near Dublin, and at Dunkerron, County of Kerry.

7. C. *multipartitum*, SMITH. *Thallus* orbicular, radiating, at length open in the centre; lobes smooth, repeatedly branched,

the branches radiating, the ultimate subcrenate, convex above, concave beneath; *apothecia* sessile, at length convex, the disk brownish or black, the border nearly entire. *Eng. Bot. t.* 2582. β. *fluviatile*, segments obovate, nearly entire; apothecia globose, concave. *Ach. L. Un. p.* 636. *Eng. Bot. t.* 2039.

α. on limestone, in dry situations, at Dunkerron; common. β. on limestone in rivulets at Sallagh Braes, County of Antrim, *Mr. Templeton.* The lichens that grow absolutely in water are few, if any. I have referred *C. fluviatile* (at least of *Eng. Bot.*) as a variety arising from occasional inundation, to *C. multipartitum*, (of the same work.) The thallus of both is sometimes granulated with buds. I do not think any specific distinction is discoverable to keep the two separate.

8. C. *fragile*. *Thallus* orbicular, olive-black, radiating, at length open in the centre, marginal lobes rough with wrinkles and granules, concave beneath; *apothecia* immersed, concave, their disk pale tawny; their border scarcely raised above the thallus.

On limestone rocks; at Dunkerron, County of Kerry. Thallus in round patches from three to four inches in diameter, divided into radiating lobes, the central parts at length deficient, or the plant increasing by a prolongation at the circumference, in which case the lobes are quite unconnected. The lobes are short, linear, tumid, deflexed at the top, concave beneath, scarcely crenate, sooty-black inclining to greenish-olive, sometimes to brown when dry; by moisture becoming of a dark olive-green and more pellucid; their upper surface rough with granules, concolorous with the thallus, clustered, of different sizes, globular, yet flattened at the top; the newer and circumferential portions of the thallus are often a little wrinkled above. Apothecia on lobes that are thicker and paler than the barren, clustered, quite immersed, the disk very pale brown; they occur but rarely, and when present are not easily seized by the eye. This species has so strong an affinity to the preceding that it probably has been taken for young patches of it. But, although usually growing in company with, it is scarcely one-sixth of the size of *C. multipartitum*; and no intermediate states are to be found. It is of a darker colour, its surface more rough, but, above all, the full grown apothecia are so minute as to be inconspicuous to the naked eye, entirely plunged in the thallus and very pale. The repeated observation of numerous specimens gave the same results. +

9. C. *marginale*, HOOK. *Thallus* orbicular, olive-black, substellate, the lobes imbricated, deeply laciniated, multifid, flexuose, sessile, dark reddish-brown, their border at length entire. *Hook. Eng. Flor. v.* 5, *p.* 210. *C. melænum.* β. *marginale*, *Ach. L. U. p.* 637. *Eng. Bot. t.* 1924.

Near Belfast, *Mr. Templeton*; near Bantry, *Miss Hutchins.* The border to the shields appears sub-crenulate, owing to the granular buds of the thallus that are affixed to the outside of the apothecia; when these buds at length drop off, the border remains entire.

* * * *Thallus somewhat foliaceous, thin, lobed, principally at the circumference.*

10. C. *Burgessii*, Ach. *Thallus* foliaceous, thin, subimbricated, glaucous, greenish or dark brown; the lobes rounded, sinuated, crenulated, crisped, villose beneath; *apothecia* depressed, flattish, dusky brown, with a crisped and minutely foliaceous border. *Ach. L. U. p.* 645. *E. Bot. t.* 300.

On old trees in the woods, near Killarney. The inferior surface of the frond shows an affinity with the genus *Sticta;* for the down beneath is composed of broad acute stellate *laminæ*. The apothecia are pedunculated with an elevated portion of the thallus, which, seen from behind, appears a deep cavity: the backs of the apothecia are downy in the same way as the bottom of the thallus, and this downiness even extends a little way from the apothecia on the upper surface. The edges of the thallus are thickened and dark, as also of the buds as they expand into foliaceous scales on the margins of the apothecia.

11. C. *nigrescens*, Ach. *Thallus* foliaceous, membranaceous, consisting of a single leaf, orbicular, depressed, wrinkled, rotundato-lobate, dark olive-green or nearly black; *apothecia* central, crowded, small, at length convex, reddish-brown, their border entire. *Ach. L. U. p.* 646. *Eng. Bot. t.* 345.

Near Belfast, and at the Dargle River, *Mr. Templeton.* At Dunkerron, common. The apothecia sometimes scattered, pruinose.

12. C. *flaccidum*, Ach. *Thallus* foliaceous, membranaceous; the lobes, ascending, rounded, plicate, entire, having buds as a fuliginous powder on their centre; *apothecia* scattered, reddish. *Ach. L. U. p.* 647. *Eng. Bot. t.* 1653.

On trees, near Bantry, *Miss Hutchins.* When moistened of a paler colour and greener at the edges than the preceding, and when dry never so remarkably wrinkled.

13. C. *granulatum*, Hook. *Thallus* foliaceous, membranaceous, somewhat wrinkled, plaited, granulated on both sides, blackish-olive; the lobes, ascending, rounded, their margins waved, crisped, entire; *apothecia* scattered, dark brown. *Hook. Eng. Flor. v.* 5, *p.* 211. *C. furvum, Ach. L. Un. p.* 650.

On the ground, near Belfast, *Mr. Templeton;* at Dunkerron. The buds or grains are larger than in the preceding.

14. C. *crispum*, Borr. "Lobes of the *thallus* thinnish, much divided, their segments imbricated, crowded, rounded, concave, with entire or denticulate, raised edges; *apothecia* sessile, the border crenulate, at length leafy." *Borr. in Eng. Bot. Supp. t.* 2716, *f.* 1.

On stones, and on mortar. Near Belfast, *Mr. Templeton.* In the South of Ireland not uncommon.

15. C. *sinuatum*, Hook. *Thallus* foliaceous, membranaceous, imbricated, and plaited, dark glaucous-green; the lobes

small, crowded, rounded, sinuato-incised, crisped, nearly entire; *apothecia* scattered, sessile, brownish, their border entire. *Hook. Eng. Flor. v.* 5, *p.* 213. *Eng. Bot. t.* 772.

On rocks, walls, and on the earth. Near Belfast, *Mr. Templeton;* near Bantry, *Miss Hutchins:* at Dunkerron, where it is never found but on limestone.

16. C. *tremolloides*, Ach. *Thallus* foliaceous, membranaceous, very thin, almost diaphanous, smooth on both sides, of a leaden green colour, lead coloured and opaque when dry; the lobes oblong, rounded, sometimes incised, entire; *apothecia* sessile or elevated, flat, reddish, with a smooth, pale border. *Ach. L. Un. p.* 655. *Eng. Bot. t.* 385.

In moist woods. Near Belfast, *Mr. Templeton.* Dargle River, *Dr. Whitley Stokes.* Near Bantry, *Miss Hutchins.* Askew Wood, County of Kerry. In a dry state the shining surface of the thallus, its lead colour, entire edges, and the elevation of the neat apothecia are very characteristic.

17. C. *lacerum*, Ach. *Thallus* foliaceous, membranaceous, subdiaphanous, when dry reticulato-subrugose, glaucescent, or bluish brown; the lobes small, subimbricated, finely jagged and fringed; *apothecia* scattered, minute, concave, reddish, with a pale border. *Ach. L. Un. p.* 657. *Eng. Bot. t.* 1982. *β. proliferum.*

Among mosses; common. At Askew Wood, County of Kerry, a variety, (if it be only a variety,) in a barren state, occurs, in which the lobes are minute, ascending, concave, slightly waved, quite entire, of a dull dun-green when wet, lead coloured when dry. There is, indeed, a crenulate appearance of the lobes, but a magnifier shows this to arise from minute, round, entire foliaceous buds, that issue from the edges of the frond; these, when grown to half the size of the fronds, remain perfectly entire; and hence may, perhaps, with much propriety, be considered a proliferous state of the present species.

* * * * *Thallus cut into numerous slender branches.*

18. C. *subtile*, Ach. *Thallus* substellated, blackish-green, *laciniæ* appressed, narrow-linear, subdivided, entire, obtuse, radiating; *apothecia* central, flattish, very minute, brownish, with a narrow entire border. *Ach. L. U. p.* 659. *Eng. Bot. t.* 1008.

On wet clay: not uncommon in winter and spring.

19. C. *muscicola*, Ach. *Thallus* tufted, shrub-like, dark, olive-brown; the branches cylindrical, erect, flexuose, somewhat knotted, obtuse; *apothecia* subterminal, flat, brown, their margin entire. *Ach. L. U. p.* 660. *E. Bot. t.* 2264.

Among mosses; very common.

20. C. *spongiosum*, Ach. *Thallus* of a dull green, the segments crowded, branched, granulated, cylindrical, obtuse; *apo-*

thecia scattered, large, concave, immersed, brown, exteriorly spongy and pale, their border erect, slender. *Ach. L. U. p.* 661. *Eng. Bot. t.* 1374.

On earth; near Lisburn, *Mr. Templeton.* When dry the disk is almost black and very concave.

† † *Thallus crustaceous.*

21. VARIOLARIA, *Pers.*

Thallus crustaceous or cartilagineo-membranaceous, uniform. *Apothecia* verruciform, formed of the thallus, bearing a powdery or flocculent substance covering the disk.

1. V. *griseo-virens*, TURN. and BORR. "Crust elliptical, inclining to tartareous, thin, slightly rugged, grey, nearly indeterminate; *apothecia* small, nearly orbicular, with a very narrow elevated border; powder greenish-grey." *Turn. and Borr. Lich. Br. p.* 54. *Eng. Bot. t.* 2400.

On cherry bark at Killarney. *Sir Thomas Gage.* I have never seen this species.

2. V. *discoidea*, PERS. *Thallus* orbicular, somewhat tartareous, wrinkled, powdery on the surface, glaucous white, with a zonate border of various colours; *apothecia* numerous, with a thick border, flat or slightly convex; disk pale, flesh-coloured; powder white. *Pers. ap. Uster. in annal. d. Bot. St.* 7. *Eng. Bot. t.* 1714.

Near Bantry, *Miss Hutchins.*

3. V. *faginea*, PERS. *Thallus* orbicular, subtartareous, smooth when young, glaucous white, with a zonate border of various colours; *apothecia* numerous, with a narrow border; disk convex; powder white. *Pers. ap. Ust. in Ann. d. Bot. St.* 7. *Eng. Bot. t.* 1713.

On trees, near Belfast, also on stones on Devis Mountain, *Mr. Templeton.* The bitter taste of the foregoing species, absent in this, has been supposed to be a sure criterion between them: all other distinctions, it must be confessed, are too slight. But the rock variety of Mr. Templeton, above quoted, is as bitter as *V. discoidea.*

4. V. *aspergilla*, ACH. *Thallus* tartareous, subdeterminate, thickish, of a slightly glaucous-white, unaltered by moisture, wrinkled, with a smooth, thin, white border; *apothecia* rather scattered, elevated, flattish-hemispherical, their border obsolete; their powder white and greenish-white, collected into granulations. *Ach. Lich. U. p.* 325. *Eng. Bot. t.* 2401.

On oaks, at Drômore, County of Kerry. Patch from four to six inches wide. Thallus of a dull white, unaltered when wet, but the powder on the apothecia shows more of a greenish-hue: beneath the powder is a thick dense layer of a pale flesh coloured matter, in which, however, neither cellules or *gongyli* are discoverable, thus representing a barren *lamina proligera.*

5. V. *lactea*, Pers. *Thallus* tartareous, white, smooth, cracked, the border thin, tinged of a flesh colour; *apothecia* numerous, suborbicular, flattish, their border at length obsolete; their powder white. *Pers. ap. Ust. in Ann. d Bot. St.* 7, *according to Ach. Lich. Un. p.* 321. *Eng. Bot. t.* 2410. β. *arenaria.* "Thallus continuous, dirty lead-coloured; apothecia elevated, nearly spherical." *Hook. Eng. Flor. v.* 5, *p.* 170.

α. on siliceous rocks, Kenmare River. β. *Mr. J. T. Mackay.* Thallus scarcely altered in colour when moistened: the border sometimes not conspicuous. The apothecia do not seem to bear fertile *laminæ proligeræ* beneath the powder with which the surface is strewn over. I have not seen the var. β. but quote it on Dr. Hooker's authority.

6. V. *constellata*. *Thallus* filmy, subtartareous, wrinkled with flattish, minute granulations, thin, of a greyish-white, indeterminate; *apothecia* numerous, rather evenly and thickly set, small, white, subhemispherical; disk flesh coloured; the border rather thick, ruptured.

On birch bark at Askew Wood, County of Kerry. The thallus scarcely assumes a greener shade when moistened, and forms a broad patch, conspicuous at a distance from its whiteness; it closely invests the bark; its border a little whiter, is neither zonate or fibrous, but gradually disappearing. The powder over the disk of the apothecia is pure white, continuous, and like a coarse granulation; beneath this a very fine white powder covers the pale flesh coloured disk; the border is rather thick, low, having all round a ruptured appearance, and exhibiting greenish points, as if from the *thallodal* rim a circular piece had been abraded. The *lamina proligera,* when wet, is pale, gelatinous, semitransparent, and consists of elongated, among punctiform cellules.

7. V. *corallina,* Ach. *Thallus* tartareous, thick, of a lead-grey, cracked, wrinkled, bearing pale, round buds on cylindrical, closely set elevations; *apothecia* hemispherical, flattened above; border inflexed, closely granular, white as well as the powder over the pale flesh-coloured disk. *Ach. L. Un. p.* 319.

On siliceous rocks, in the mountains, County of Kerry. Our plant exactly accords with the Acharian description, and very well with that of *Isidium paradoxum, Hook. Eng. Fl. v.* 5, *p.* 231, except that the bodies with which the cylindrical *podetia* are tipped, are rarely of a brownish-olive, but usually whitish: when these drop, they leave cup-shaped cavities on the tops of the podetia, green at their bottoms. The colour of the thallus is unaltered by moisture. The border and tops of the apothecia often bear buds. The disk is of a pale wax or flesh colour, covered with a fine white powder; the *lamina proligera* is small compared to the size of the apothecium, and when wet is gelatinous and semi-transparent, and consists of numerous elongated cellules among others that are short and roundish.

8. V. *polythecia.* *Thallus* tartareous, thick, granulated, rough, indeterminate, greyish-lead-coloured; *apothecia* stalked, thickly set, with coarse, white and greenish powder; the bor-

der thick, irregular; the disk of a pale, flesh-colour; often several in each apothecium.

On siliceous rocks, facing the south. Dunkerron Mountain; not rare. The patch, often several inches in diameter, is conspicuous by the crowded and stalked apothecia, placed in contact, like certain basaltic columns. The granulations of the thallus are of different sizes, the larger sometimes convolute, or indistinctly lobed by the confluence, as it were, of several granulations. The *thallus* is thin and almost filmy at the edge, and even somewhat radiating. The wet surface is somewhat more green than the dry. Towards the edges the apothecia have shorter, sometimes no stalks. The apothecia rise as large spheres of the *thallus*, of a like colour and similar roughness, burst by an irregular crack in one or more directions, leaving very coarse thallodal grains here and there on the surface: at length these grains drop off, and a fine powder, white, (wet or dry,) covers the flesh-coloured disk or disks. Two, three, four, and even five *laminæ proligeræ* are seen within the same apothecium, separated by dense and white partitions, by moisture pale and pellucid, having internally elongated cellules. This aggregation of *laminæ proligeræ* presents a character so important, that they who are inclined might see in it a generic distinction analogous to that which separates *Porina, Ach.* from *Verrucaria Ach.*

9. V. *torta*. *Thallus* very thin, between filmy and tartareous, cracked, smooth, whitish, indeterminate; *apothecia* very minute, hemispherical, bursting irregularly; the disk twisted and bent, of a pale flesh colour; the border irregular.

On siliceous rocks, in shade, at Askew Wood, County of Kerry. Thallus in old age assumes a greenish hue, which is always observable in a moist state; when dry the edges of the cracks of the thallus are slightly elevated, giving a rough appearance to the surface. Apothecia when young are covered with a white *pruina* or powder. The twisted disk lies in a cavity of the apothecium, correspondently twisted; this cavity has sometimes a cellular appearance of the sides. The *lamina proligera* is of a pale milky colour, gelatinous when wet, and under a high magnifier is found to contain numerous cylindrical cellules, having minute globules interspersed. This species may be taken for certain states of *Lecanora coarctata, Ach.* but the thallus is more distinctly separated by fissures, and the structure of the apothecia by no means alike. A white powder covering the disk in a young state gives it a better claim to Variolaria than any other described genus.

10. V. *chlorothecia*. *Thallus* tartareous, thin, white, areolate, subpulverulent at the surface, with a narrow, deep-black border; *buds* with hemispherical, thallodal *podetia*, tipped with minute, round, brownish, at length caducous points; *apothecia* sessile, round, flattish, with a thick, thallodal margin; powder white, covering a greenish-olive disk.

On siliceous rocks, Carig Mountain, County of Kerry. The minute *Isidium*-like buds, the narrow black border to the *thallus*, the flat apothecia, and colour of the disk, together, are sufficiently distinctive. The buds dropping, leave cup shaped cavities, green at their bottoms, on the tops of the *podetia*. The *lamina proligera*, when moist, is gelatinous, semi-transparent, sub-rotund, not enclosed in any distinct tegument, containing elongated cellules in a jelly-like substance.

11. V. *terricola*. *Thallus* thin, pulverulento-tartareous, white, rough, indeterminate, continuous; *apothecia* globose, with a thin, white, granulate, covering; disk pale flesh-coloured; border irregular.

On the surface of peat and on stems of heath near Comber, *Mr. Templeton*. Dunkerron Mountain: rare. The patches are several inches broad. The thallus has a rugged appearance, principally arising from the cup-shaped remains out of which the apothecia have dropped. Apothecia sometimes a little flattened, sometimes elongated; their granulated and wrinkled covering on dissection shows a layer of green parenchymatous matter, proving its nature to be thallodal. The moistened *lamina proligera* contains numerous pellucid globular bodies. At some little distance the patch may be passed over as belonging to *Cenomyce Pycnothelia*, or, perhaps, to that of *Lecidea icmadophila*, both of which affect similar situations; but the slightest examination of the apothecia would suffice to correct either error.

22. LECIDEA, *Ach.*

Thallus crustaceous, uniform, or scaly. *Apothecia* orbiculate, sessile, or slightly immersed; the disk coloured; the border of the same colour as the disk.

† *Thallus crustaceous.*

* *Apothecia black.*

1. L. *macula*. *Thallus* subtartareous, very thin, determinate, areolate, inferior stratum black; upper of very minute, distinct, crowded, thin, greyish-olive, concave scales; *apothecia* half immersed, concave; the disk black, rough; the border elevated, pale when dry.

On siliceous rocks, near Dunkerron, County of Kerry; not uncommon. The patches, one or two inches in diameter, closely invest the surface of the rock, and are conspicuous as black stains. The thallus, though extremely thin, is composed of two layers, of which the inferior is most abundant, black, seen between the minute scales, of which the superior is composed, and likewise exceeding at the edges. The scales are concave, of a greyish olive, roundish or oblong, with elevated whitish edges observable only by the lens; in a dry state their surface is rough and somewhat powdery. The apothecia, thinly scattered and inconspicuous to the naked eye, are immersed in the scales, and have a pale, entire, raised border, of the colour of the scales when dry, but black when wet; the disk by moisture swells, becomes convex; it is black; beneath which, dissection shows the *lamina proligera* to be a thin layer, pale brown and semi-transparent. This species, perhaps, may with equal propriety be referred to the genus Urceolaria but for its great affinity to a small tribe allied to *Lecidea atro-alba*.

2. L. *melastigma*. *Thallus* subtartareous, very thin, subdeterminate, areolate, inferior stratum black; upper of very minute,

crowded, rather convex, rugged, dark-grey scales, greenish when wet; *apothecia* very minute, conspicuous, sessile; the disk black, rough, flat, at length convex; the border thick, entire, at length subobliterated.

On siliceous rocks, near Dunkerron, County of Kerry. This, like the preceding, forms patches or stains on the surface of the rock, but of a duskier black. The inferior black stratum exceeds at the edges, and appears abundantly between the scales: these are of a yellowish-green when moist, of a dusky-grey and pruinose when dry, rough with elevated paler points, oblong or rotundato-angulate, not distinguishable by the naked eye The apothecia are scattered and minute, yet very visible as black projecting points; the disk rougher and blacker than the border, flat or convex; the border becoming obsolete sometimes from the convexity of the swoln disk. Dissection under the lens shows, beneath a black rough disk, a *lamina proligera* striated, its upper layer pale, its lower of a pale blue, beneath this is some slightly brownish-white matter resting on a black substance. It may be distinguished from *L. macula* by the evident and sessile apothecia, not placed each on a scale, by the appearances on dissection, and by the scales being more minute and without the elevated pale border. In *L. prominula, Borr.* the upper surface does not change its brownish hue to yellowish green when moistened, is areolate, but not divided into distinct scales; the apothecia in a dry state have a more concave disk, and more raised border; the entire *thallus* is thicker; the nature of the *lamina proligera* very different.

3. L. *atro-alba*, Ach. Inferior stratum of the *thallus* thin, black, closely investing, the upper of crowded, somewhat convex, brownish-grey, rough scales; *apothecia* in the interstices, larger than the scales, plano-convex, black; the disk rough; the border smooth, entire, at length obliterated. *Ach. Lich. Un. p.* 162. *Eng. Bot. t.* 2336.

On siliceous rocks, near Dublin: also near Dunkerron, Kerry. In a dry state the warts or scales of the thallus are flatter, and so aggregated that the collection appears like portions of a crustaceous thallus areolated. The patches are from one to six inches in diameter. The moistened apothecia are very convex, their border scarcely to be seen, their disk, from being black, assuming a dun or grey colour; beneath this is a thick, pellucid, brownish-grey *lamina proligera*, striated, resting on brownish-black matter.

4. L. *fumosa*, Ach. Substratum of the *thallus* tartareous, thick, black, cracked; the upper layer of immersed, roundish, distinct or crowded, flat or concave scales, of a brownish-fawn colour, with raised, pruinose edges; *apothecia* scattered, larger than the scales, flat, black, pruinose; the border thick, entire, slightly waved. *Ach. L. Un. p.* 157. *Mugeot and Nest. Cr. Vog. Rh. No.* 461.

On siliceous rocks; Dunkerron; not uncommon. Allied to the preceding. Moisture applied produces no other change on the scales but their more pruinose appearance especially at the edges. The apothecia are not in the interstices as in the preceding, their border paler than the disk; this last appears, on dissection, to be black, thick, covering a pale, almost white, thin *lamina proligèra*, beneath which again is much brownish-black matter, completing the rest of the apothecium. Minute tumours of the scales, irregularly opening, with white powdery edges, black within, constitute the buds.

5. L. *recedens*. Substratum of the *thallas* subtartareous, thick, black, cracked; the scales of a smoke-grey; the infertile thin, minute, crowded; the fertile large, roundish, somewhat lobed; *apothecia* immersed, scattered, flat; disk black; the border paler, obliterated by moisture.

On siliceous rocks, mountains near Dunkerron. The situation of the apothecia is like that of the preceding, viz. on the scales of the thallus; these are somewhat browner when wet; the infertile are crowded into an areolate form. The apothecia, concave when dry, become plane when saturated with moisture: the border sometimes appears to have a whitish pruina: when dissected the disk appears thin, and rough, with projecting black points; the *lamina proligera* is thick, striated, nearly colourless, transparent, resting on dark brown matter. The species is allied to *Urceolaria cinerea.*

6. L. *fusco-atra*, ACH. Substratum of the *thallus* black, thin; scales greyish-black, crowded into an areolate form, flat, pruinose; *apothecia* larger than the scales, slightly immersed in the interstices, depressed; the disk flat, black, rather rough; the border paler, thick, raised. *Ach. L. Un. p.* 359. *Eng. Bot. t.* 1734.

On flints, near Belfast, *Mr. Templeton*. The border to the thallus is a radiating production of the substratum. The surface of the older apothecia is sometimes proliferous and rough with young apothecia. Dissection shows the disk black and opaque, covering a thin, semitransparent *lamina proligera*, resting on brownish-black matter. It is difficult, perhaps impossible, to distinguish this from *L. atroalba.*

7. L. *cechumena*, ACH. Substratum of the *thallus* thin, black, appearing among the interstices and at the edges; upper layer of tartareous, tumid warts crowded and confluent at the centre, distinct at the edges, powdery, white on the surface, under which of a pale, brownish-olive; *apothecia* on the warts, immersed, blackish, at length convex; the border thin, partially covered with a thallodal layer. *Ach. Meth. p.* 42. *Eng. Bot. t.* 1830.

On siliceous rocks, near Dunkerron, County of Kerry. Our plant agrees better with the description of the variety β. *athroocarpa* of *L. cechuména, Ach. L. Un. p.* 158, than with his α. Disk pale brown; *lamina* thick, nearly colourless, striated, resting on brown matter.

8. L. *petræa*, ACH. *Thallus* thin, tartareous, suborbicular, whitish, cracked, minutely warted; with a black substratum observable in the interstices, and at the border; *apothecia* immersed, black, flat, with an elevated, tumid border. *Ach. L. Un. p.* 155. *Eng. Bot. t.* 246.

On siliceous and aluminous stones; not uncommon. This has somewhat the habit of an *Urceolaria*, the apothecia having occasionally a spurious border from the thallus. Beneath the dark disk is the *lamina proligera*, of a horny transparency, pale or whitish, never of the same colour as the disk, as Acharius defines it; beneath the *lamina proligera* is some brownish-black matter. The apothecia are commonly, but not always, concentrically arranged.

9. L. *lapicida*, ACH. *Thallus* tartareous, thin, cracked, rather smooth, grey or whitish, with a black substratum observable in the interstices and at the border; *apothecia* half immersed, flattish, at length somewhat confluent, black, with a narrow, raised border. *Ach. L. U. p.* 159. *Eng. Bot. t.* 821.

On siliceous and aluminous stones and rocks; at Blackwater bridge, County of Kerry; near Belfast, *Mr. Templeton.* So nearly allied to the preceding, that it is with the greatest hesitation here allowed to be distinct. The thallus is less rough, the apothecia have not the concentric arrangement, have never the spurious border, and the entire patch has at times a glaucous, and even greenish hue, not observed in the preceding. Acharius relied much on the internal structure of the apothecia, which I do not find to be very different: the black border, indeed, is more apparent, and the disk less opaque.

10. L. *stellulata.* Substratum of the *thallus* very thin, black, exceeding at the edges; the upper layer of minute, brilliant, smooth, tartareous, roundish, subcrenate scales, aggregated in a subradiated manner; *apothecia* central to the clusters of scales, flat, black, half immersed; the border smooth, entire, obliterated when moist.

On siliceous and aluminous rocks, in the Kerry mountains; also near the sea-shore: not uncommon. Patches of the thallus usually less than an inch in diameter, yet sometimes confluent into such as are three or four inches long. The black central apothecia are contrasted with the bright white scales that surround them; they are numerous, yet evenly scattered, sometimes confluent. The white scales near the border are thinner, and infertile. The patch is little or not at all altered by moisture. The disk swells greatly when wet, and obscures the border; it is rough, but not in the least pruinose: under the lens the dissected apothecium shows the disk thick and black, with black converging processes entering the *lamina proligera;* this is dark brown, somewhat pellucid, and striated; beneath is much black matter, forming the base of the apothecium. Probably this species is alluded to by Mr. Borrer under *Verrucaria polysticta.* in *Eng. Bot. Supp. t.* 2741.

11. L. *confluens*, ACH. Substratum of the *thallus* thin, black, appearing in the interstices and at the edges; upper layer tartareous, cracked, of a smoke-grey, even, rather smooth; *apothecia* sessile, black, pruinose, flat, at length convex and confluent; the border black, raised. *Ach. L. Un. p.* 174. *Eng. Bot. t.* 1964.

On siliceous rocks: common. Patches often several inches in diameter. Sometimes the apothecia only, sometimes the entire thallus, has a rust coloured surface; the thallus is occasionally not observable when the apothecia are largest and most convex; the apothecia sometimes seem to occupy the thallus of other lichens. Dissection shows, beneath a thin black disk, the *lamina proligera* to be a very narrow layer, striated, whitish-grey, and pellucid, supported on a thick collection of black matter.

12. L. *prominula*, Borr. *Thallus* thin, somewhat tartareous, minutely warty, of a smoke-grey or brownish; *apothecia* sessile, numerous, minute, black; the disk flattish, rough; the border entire, thick, raised. *Borr. in Eng. Bot. Supp. t.* 2687, *f.* 1.

On rocks near Belfast, *Mr. Templeton.* County of Kerry; not uncommon. Varies in the colour of the thallus, its evenness, as well as remarkably in the size of the apothecia. Beneath a brownish-black disk is a *lamina proligera* pellucid, brownish-grey, and striated, but the brownish-black matter, so commonly filling up the base of the apothecium in nearly all the preceding species, is here almost wanting. +

13. L. *premnea*, Ach. *Thallus* thin, subtartareous, cracked, minutely wrinkled, of a sordid greenish-grey, with a white, finely fibrous border; *apothecia* slightly convex, sessile; their disk black, rather rough; their border smooth, at length undulated and subcrenate. *Ach. L. Un. p.* 173. *Fries. Lich. Suec. exsicc. No.* 26. *Dill. Musc. t.* 18, *f.* 3?

On elms, near Belfast, *Mr. Templeton.* At Derriquin, County of Kerry; plentiful. Our specimens agree with those of Fries and with the Acharian description. There is no black border to the thallus, as in *L. elæochroma, Ach.* The apothecia are twice the size of the latter, and their internal structure is different: besides, moisture causes their surface to turn brownish, but of *L. elæchroma* of a pale blue. Beneath a brownish-black disk, rough with elevations, is a *lamina proligera,* in a thin, almost colourless, and transparent layer, beneath which again is a thick collection of black matter.

14. L. *elæochroma*, Ach. *Thallus* thin, subtartareous, granulated and somewhat wrinkled, pale green, black-edged, cracked; *apothecia* somewhat immersed, crowded, black, flat, at length convex. *Ach. Syn. p.* 18. *Mugeot and Nestler, No.* 746. *Lichen parasemus, Eng. Bot. t.* 1450.

On trees; common. In wet weather the disk has a pale bluish tinge: the greenish tinge of the thallus is sometimes faint, and in other cases deep; a brownish-olive here is not uncommon. On oaks at Derriquin the apothecia are in very distinct clusters, each cluster appearing to the naked eye as a large apothecium. Dissection of the wet apothecia shows, beneath a pale bluish-brown disk, a thin, transparent, and colourless *lamina proligera,* resting on much brown matter.

15. L. *parasema*, Ach. *Thallus* thin, submembranaceous, whitish or grey, cracked into smooth, flat, tumid portions, faintly black-edged; *apothecia* sessile, scattered, black, convex; the disk rough; the margins thin. *Ach. Syn. p.* 17. *Mugeot and Nestler, No.* 745.

On birch trees; at Cromaglown, near Killarney; rare. The whitish, filmy, less granulated, and more extensive thallus—as well as the scattered apothecia, with their disk rougher, and, when wet, brownish-black, not glancescent—distinguish this from the preceding; indeed, it seems far more nearly allied to *L. premnea,* whose thallus, however, is thicker, tartareous, minutely and more decidedly wrinkled, of a greenish hue, whose border is white and fibrous; and the apothecia usually larger. Beneath a dark brown disk, dissection shows a dusky or brownish semi-transparent *lamina proligera,* with some scattered, but nearly parallel and vertical opaque dark *striæ,* resting on much brownish matter.

16. L. *pinicola,* HOOK. *Thallus* very thin, diffuse, filmy or subtartareous, whitish; *apothecia* very minute, numerous, evenly scattered, brownish-black, flattish, at length convex, and the border obliterated. *Eng. Flor. vol.* 5, *p.* 176. *Eng. Bot. t.* 1851.

On bark of firs; near Belfast, *Mr. Templeton.* Woods at Turk mountain, near Killarney, where it occurs also on oak.

17. L. *dubia,* HOOKER. *Thallus* thin, subtartareous, granulated, filmy, brownish-grey; the border pale; *apothecia* immersed, clustered, brownish-black, at length convex, and their border obliterated. *Hook. Eng. Fl. v.* 5, *p.* 176. *Eng. Bot. t.* 2347.

On paling; near Belfast, *Mr. Templeton.* On paling at Derriquin, County of Kerry; and on a barn window at Feltrim hill, near Dublin. Our plant has the strongest analogy with *L. elæochroma:* the appearances on dissection of the apothecia are quite the same.

18. L. *Griffithii,* HOOK. *Thallus* thin, subtartareous, minutely granulated and wrinkled, cracked, not limited, of a brownish-ash colour; *apothecia* sessile, scattered, purplish-black, at length convex; the *lamina proligera* thick, pale, brownish-white. *Hook. Eng. Flor. v.* 5, *p.* 177. *Eng. Bot. t.* 1735. *Lec. enteroleuca, Ach. L. Un. p.* 177.

On old oaks, near Belfast, *Mr. Templeton:* on furze, Dunkerron. The thallus does not appear to be limited. The tops of the young apothecia sprinkled, as rough black minute specks, over the thallus, each contain under them a *lamina proligera.* This, in the full grown tubercles, under an opaque dark brown disk, is a thick, brownish, striated, semi-transparent layer, resting on a thin stratum of somewhat an opaquer brown.

19. L. *Gagei,* HOOK. "*Thallus* dispersed, minutely granulated, somewhat fibrous, bibulous, of a tawny olive; *apothecia* minute, blackish-brown, with a paler border of their own substance, finally convex, and deprived of their border." *Smith. Hooker, Eng Flor. v.* 5, *p.* 177. *Eng. Bot. t.* 2581.

On a rock called O'Donoghue's Prison, at Killarney, *Sir T. Gage.* I have never seen a specimen of this: the English Botany figure does not appear to be very different from that of *L. synothea, t.* 1711, of the same work.

20. L. *sanguinaria,* ACH. *Thallus* tartareous, coarsely gra-

nulated and wrinkled, somewhat polished, ash-coloured, not limited; *apothecia* irregularly clustered, convex, at length confluent and irregular. *Ach. L. Un. p.* 170. *Eng. Bot. t.* 155.

On granite rock, at Lough Bray, near Dublin, *Mr. Templeton.* A red tinge sometimes occurs within the cortical substance of the thallus, and which communicates to so much of the crust as lies within the apothecium. This colour, whence the Linnæan trivial name originated, is by no means constant. The dissection in the Eng. Bot. does not represent the *lamina proligera* of a decidedly greenish hue, which occurs in the Lough Bray specimens.

21. L. *muscorum,* Hook. *Thallus* of scattered granules connected by a very thin film; granules somewhat lobed, ash-coloured; *apothecia* crowded, black, at length very convex, and the border obliterated. *Hook. Eng. Flor. v.* 5, *p.* 177. *Eng. Bot. t.* 626, (*bad.*)

On moss, on the mountains, near Belfast, *Mr. Templeton.* The disk is thin and black; the *lamina proligera* a very thin, dusky, striated, scarcely transparent layer, resting on much blackish matter, that occupies the greater part of the apothecium.

22. L. *viridi-atra,* Ach. *Thallus* tartareous, cracked into tumid, uneven, minutely granulated, pale, brownish-grey warts; *apothecia* on the warts, half immersed, black, at length very convex, and with the border obliterated. *Ach. L. Un. p.* 166. *Eng. Bot. t.* 1831.

On rocks, near Belfast, *Mr. Templeton.* Our specimens correspond with original ones of *L. miscellus* of Eng. Bot. Beneath the black disk is a thick *lamina proligera,* of a dark olive colour, striated, and pellucid, resting on a thin layer of the same colour but more opaque. The thallus does not appear to be determinate.

23. L. *scabra.* *Thallus* tartareous, granulated, the granules whitish, crowded, on a filmy greenish-grey substratum, rough, minutely wrinkled, cracked.; *apothecia* black, immersed, irregularly clustered and confluent, flat, at length somewhat convex; the disk rough; the border smooth, entire, waved, at length discharging its black colour.

On siliceous rocks, on the shore at Derriquin, County of Kerry. Patches sometimes three or four inches in diameter, having a sordid greenish hue. Thallus not determinate, growing thinner towards the edges. The granules are erect, somewhat stalked, at first entire, at length broken on their tops, and there appearing white and powdery. The border of the apothecia in many instances becomes pale throughout its substance. Dissection shows a disk, consisting of a coarse black *pruina,* beneath which is a thick, greenish-grey, striated, pellucid *lamina proligera,* resting on a layer of brownish matter.

24. L. *geographica,* Hook. Substratum of the *thallus* thin, black, subtartareous, cracked, determinate; the upper layer of bright sulphur yellow, cracked, crowded, and subconvex scales, sometimes somewhat lobed; *apothecia* black, immersed between the cracks of the scales, flat; the disk rough; the border rather

thick, smooth. *Hook. Eng. Flor. v.* 5, *p.* 178. *Eng. Bot. t.* 245.

On siliceous and aluminous rocks; common. This has the strongest affinity to *L. atro-alba;* from which it could scarcely be distinguished on cursory observation but for the colour of the scales. Beneath a thick black disk is a *lamina proligera* of a dusky brown, semi-transparent, and striated, resting on a layer of black matter.

25. L. *silacea*, Ach. *Thallus* thin, subtartareous, cracked, uneven, wrinkled, almost warty, of a rusty red; *apothecia* black, sessile, somewhat convex; the disk somewhat wrinkled; the border thin, waved. *Ach. L. Un. p.* 164. *Eng. Bot. t.* 1118.

On sub-alpine rocks; not rare. A spurious thallodal border to the apothecia is very common; the thallus is indeterminate; under the lens the disk appears studded with numerous black points, but these are so far separated that the blackness of the surface is not continuous; the *lamina proligera* is nearly white, pellucid, striated, resting on a small central portion of black matter.

26. L. *Œderi*, Ach. Substratum of the *thallus* thin, black, appearing in the interstices and at the border; upper layer tartareous, tessellated, of a dusky red, smooth; *apothecia* black, minute, rather concave, with a thick border. *Ach. Syn. p.* 22. *Eng. Bot. t.* 1117. *Lec. Dicksonii, Ach. L. Un. p.* 165.

On sub-alpine rocks; not uncommon. Accompanies the preceding. In both the structure of the apothecium is extremely similar, only in the present the disk is flat or concave. Apothecia are often clustered and confluent.

27. L. *scabrosa*, Ach. *Thallus* tartareous, cracked, indeterminate, of a brownish-grey, with whitish elevations that discharge *buds* greenish and powdery; *apothecia* black, half immersed, minute, often clustered. *Ach. Meth. Lich. p.* 48. *Eng. Bot. t.* 1878. *Ach. L. Un. p.* 180.

On siliceous rocks; not uncommon. The surface of the true thallus is often covered and concealed beneath the buds, that appear as a greenish powder.

28. L. *flavo-virescens*, Borrer? *Thallus* indeterminate, with a pale brown, filmy, investing substratum; scales very minute, clustered in patches, of a lively yellowish-green; *apothecia* minute, black, on the substratum; the disk plane or concave, rough; the border thick, entire, smooth. *Borrer, MSS. according to Hook. Eng. Flor. v.* 5, *p.* 178? *Lec. citrinella, Ach. L. Un. p.* 179?

On mosses, at Bonane and Kilceanagh, County of Kerry. Doubts arise as to the synonyms given above, since the authors above quoted do not notice two distinct *strata* to the thallus, and since they denominate the apothecia to be globose. Our plant attracts the eye by its colour, and the graniform aggregations of the scales into flattish clusters, each seldom exceeding a quarter of an inch in diameter. The border of the apothecia is the mouth of a thick black cup, in which the *lamina proligera* is contained, being a thick layer of pellucid, pale brown, striated matter, subtended above by a dark brown thin disk, whose surface is rough with projecting points. The apothecia are sometimes clustered, when their border is variously waved. Perhaps what I have called scales may turn out to be the buds; they are far more coarse than in the preceding species, nor do they contain the apothecia immersed among them.

29. L. *pulvinata.* *Thallus* indeterminate, pulvinate; the substratum thick, cracked, dark-brown, brittle; scales tumid, minute, rotundo-lobate, conglomerate, of a dull whitish brown; *apothecia* on the substratum, black, at length globose and immarginate.

On moss, associated with *Jungermannia julacea*, on Mangerton, as also at Dereenafinchy mountain, County of Kerry. Patches of the thallus form cushions two or three inches in diameter. Carelessly viewed, the upper layer of the thallus would appear to be crustaceous and granulate, but the real structure exhibits aggregate sublobate scales, of a dull pale brown; in which respect it is very different from the preceding, but still more decidedly so in the structure of the apothecia. These are at first mere minute points, then concave, with a thick border, at length far exceeding the scales in size, very convex and immarginate. Dissection can scarcely discriminate the disk from the *lamina proligera*, which is subjacent in a very thin layer, and is transparent and pale, resting on much coal-black opaque matter, which fills the greater part of the apothecium. This would be arranged by some botanists under the genus *Psora* of Hoffman. It is allied to the foreign *Lec. Wahlenbergii, Ach.*

30. L. *Templetoni.* *Thallus* filmy, continuous, investing, with roundish, minute elevations, indeterminate, whitish-grey; *apothecia* black, plane, at length very convex, wrinkled and confluent, with the border disappearing.

On moss, near Belfast, *Mr. Templeton:* on turf, near Bantry, *Miss Hutchins.* Patches roundish, from one to three inches in diameter; the thallus when wet of a greenish-grey. The border of the apothecia is entire, though often waved. Dissection shows the *lamina proligera* to be extremely thin, pale brownish-grey, and pellucid when moist, lying upon an opaque black substance, forming the principal part of each apothecium, and which, seen through the transparent disk and *lamina proligera*, causes the apothecia to appear black: the disk cannot be distinguished from the upper surface of the *lamina proligera.* This species approaches, as to characters, the *L. arthonioides*, of *Ach. L. Un. p.* 178, except that the apothecia are never "scabrid or pulverulent as in the *Spilomata.*"

31. L. *synothea*, Ach. *Thallus* indeterminate, leproso-tartareous, flocculoso-granulate, uneven, subgelatinous, pale sooty-brown; *apothecia* minute, numerous, somewhat crowded, dull brownish-black, at length convex and immarginate; the *lamina proligera* shallow, supported on much whitish matter. *Ach. L. Un. p.* 169. *Eng. Bot. t.* 2711.

On pales, near Belfast, *Mr. Templeton.* Thallus thin, rugged when dry, of a lighter colour when wet, and then the granulations appear more rounded. The narrow margin of the apothecia observable in their young state only. The disk rough, opaque, nearly black; the *lamina proligera* shallow, whitish brown, semi-pellucid, striated, resting on white cortical matter, that forms the great proportion of the contents of the apothecium.

32. L. *uliginosa*, ACH. *Thallus* thin, somewhat filmy, most minutely granulated, dark olive-brown, cracked, indeterminate; *apothecia* black, minute, rather crowded; their disk somewhat rough, flat, at length convex; their border indistinct. *Ach. L. Un. p.* 180. *Eng. Bot. t.* 1466.

On the wet surface of turf or clay; not uncommon. An inconspicuous species, requiring close inspection for its detection. Beneath a black disk rests the *lamina proligera*, in a thin, slightly brownish, striated, pellucid layer, lying on much brownish-black matter, that forms the principal part of the apothecia.

33. L. *geomæa*. *Thallus* with the inferior layer filmy, of a brownish-grey; the upper of tartareous, minute, rotund, crowded granulations, of a slightly greenish-white; *apothecia* black, globose, smooth, at length confluent; the border evanescent. *Lec. uliginosa*, γ. *geomæa*, *Ach. L. Un. p.* 180.

On moss, near Belfast, *Mr. Templeton;* on turf, on stems of furze and of heath, near Dunkerron, County of Kerry. Granulations smooth or uneven, green within. Apothecia larger than the granulations. The synonym is taken from a specimen named by Acharius for the late Mr. Harriman, and sent by the latter to Mr. J. Mackay. The greatest peculiarity of this species is discovered by dissection, for beneath a disk consisting of black points contiguous or with pellucid interstices, is found a *lamina proligera*, in a narrow layer of a sea-green colour, resting on much pale-brownish pellucid matter.

34. L. *lapidicola*. *Thallus* of minute, roundish, flat, scattered scales, aggregated towards the centre of the patch, of a tawny-brown, with greyish summits; *apothecia* minute, numerous black, rugged, round or oblong; the disk tumid when moist; the border evanescent.

On slate rock, County of Down, *Mr. Templeton.* On stones, on the bridge wall at Cappamore, near Dunkerron, Kerry. There is, in the dry and young apothecium, an angular circumscription, but no distinct border, hence this species might arrange under *Arthonia*, did not all analogy forbid it. Dissection shows the disk black; beneath it the *lamina proligera*, in a thin, whitish, pellucid, striated layer, resting on brownish-black matter, twice as thick in depth; below all a greyish substance may be observed analogous to the cortical part of the thallus.

35. L. *simplex*, HOOK. *Thallus* filmy or subtartareous, thin, smooth, olive-brown, scaling away, indeterminate; *apothecia* olive-black, numerous; their disk concave, rather rough, flattish; their border raised, smooth, entire, at length waved and contorted. *Hook. Eng. Flor. v.* 5, *p.* 179. *Eng. Bot. t.* 2512.

On siliceous slate, Dunkerron; not uncommon. The patch is often several inches in diameter. The apothecia crowded or dispersed, but always numerous; sometimes the young growing out of the old.

Under the lens the disk is scarcely distinguishable from the *lamina proligera*, but as a dusky surface; the latter is a narrow layer, very pale brown, semi-transparent, and striated, resting on a dense layer of black matter. The apothecia sometimes resemble crowded *lirellæ.*

36. L. *immersa*, Ach. *Thallus* tartareous, thin, continuous, whitish, somewhat determinate; *apothecia* black, numerous, evenly scattered, flattish or concave, immersed; the disk subpruinose; the border thick. *Ach. L. Un. p.* 153. *Eng. Bot. t.* 193.

On limestone; not uncommon. The apothecia are not only immersed in the thallus, but, by a singular property of this species, and of *Verracuria Schraderi*, are placed in cavities of the stone formed by some law of the living force as yet unexplained.

37. L. *rivulosa*, Ach. |*Thallus* tartareous, determinate, cracked, brownish-grey, at length waved and rough; the border zonate, of an olive colour; *apothecia* numerous, scattered, sessile, black, flat; the disk subpruinose; the border waved, of a pale brown. *Ach. Meth.* 38, *Syn. p.* 28. *Eng. Bot. t.* 1737.

On siliceous rocks; very common. A number of individuals, separated by their dark linear borders, give the appearance of the divisions of a map far more strikingly than in *L. geographica.* Dissection shows the disk of a blackish-olive, which layer re-enters under the apothecium; beneath the disk is a pale, striated, semi-transparent *lamina proligera*, of considerable thickness, resting on some white, apparently cortical matter. Fries, in his *Lich. exsicc.* number 39, makes *Lecidea Lightfootii*, *Ach.* (and, probably, justly) a variety of this.

38. L. *pruinosa*, Ach. *Thallus* tartareous, very thin, at length scattered and disappearing, greyish-white; *apothecia* flattish, purplish-black; the disk pruinose; the border narrow, waved, and distorted. *Ach. Meth. p.* 55. *Eng. Bot. t.* 2244. *L. albocærulescens*, *β. pruinosa. Ach. L. Un. p.* 189.

On walls, near Belfast, *Mr. Templeton;* on granite, near Dublin, not uncommon. Under the lens the disk cannot be distinguished from the *lamina proligera ;* this appears of a light reddish-brown, becoming paler where it meets some white cortical matter, on which it rests, and which enters the apothecium at its lowest point; the *lamina* is semitransparent and striated. The apothecia sometimes appear immersed below the level of the surface of the lime that exudes from the mortar of walls.

39. L. *speira*, Ach. *Thallus* tartareous, subdeterminate, very white, cracked, somewhat granulated, rough, with minute elevations; *apothecia* slightly immersed, flat, covered with a white pruina, at length convex, very black, with a waved border. *Ach. L. Un. p.* 184. *Eng. Bot. t.* 1864.

On limestone, at Dunkerron Castle. At Portmarnock, near Dublin, is found apparently the same species, but with scarcely any *pruina* on the apothecia, which are very convex and rugged: this state, I suppose, is the *L. amylacea* of *Ach.* Moisture gives the thallus a greenish hue. The dissection in *Lich. Un. tab.* 2, *f.* 1, does not accord with that of the Irish plant, and, as it gives no distinct *lamina proligera,* perhaps it is incorrect. The lens shows the disk studded with closely set, dark points, beneath which is the *lamina proligera,* brownish-grey, striated, and semi-transparent, resting on black matter. I have seen Irish specimens, collected by other botanists, of *L. epipolia, Ach.* and of his *L. corticola,* but neither, could I satisfy myself, to be distinct from the present species.

40. L. *quernea,* ACH. *Thallus* leprous, brownish-grey, with olive-grey, rotund, scattered granulations; partly covered with *buds* in a coarse, dilute, dusky, yellow powder; *apothecia* somewhat immersed, convex, confluent and irregular, of a purplish deep-brown; the border evanescent. *Ach. L. U. p.* 202. *Eng. Bot. t.* 485.

On old oaks, near Belfast, *Mr. Templeton.* The apothecia are frequently clustered, swelling much by moisture. Beneath a thick dark brown disk, is observable the *lamina proligera,* sub-pellucid, of a redder or more lively brown, resting on a very thin layer of dusky matter.

41. L. *pulverea,* BORR. *Thallus* thin, between filmy and tartareous, brownish-grey, rugged, cracked, indeterminate; the surface nearly covered with *buds* in a soft, pale, coarse, greyish-green powder; *apothecia* sessile, black, often confluent, scattered; the border livid, slightly raised, at length evanescent. *Borr. in Eng. Bot. Supp. t.* 2726.

On old oaks, at Dromore, County of Kerry. The disk is rather thick and black; the *lamina proligera* dusky, yet pellucid and striated, resting on a shallow layer of dark brown matter. Our specimens exhibit a sub-stratum of the thallus to the powdery buds.

* * *Apothecia not black.*

42. L. *incana,* HOOK. *Thallus* leprous, very mealy, soft, uneven, glaucous-grey, at length whitish-grey; "*apothecia* scattered, sessile, brown, with a paler brown, even, smooth border." *Hook. Eng. Flor. v.* 5, *p.* 181. *Lepraria incana, Ach. L. Un. p.* 665.

On decaying turf, at Colin glen, near Belfast, *Mr. Templeton.* The apothecia have not yet been met with in Ireland.

43. L. *luteola.* ACH. *Thallus* thin, between filmy and tartareous, slightly granulated, indeterminate, greenish-grey; *apothecia* sessile, at length convex, of a tawny flesh colour or brownish, the border at length evanescent. *Ach. L. Un. p.* 195. *Lichen vernalis, Eng. Bot. t.* 845.

On elms, at Dunkerron; on rocks, at Derriquin, County of Kerry. The thallus varies in thickness, being thinner and more powdery on trees; on rocks, at Derriquin, it is almost tartareous, somewhat rugged; at Glenflesk, smooth, soft, and whitish. The disk appears dotted, the *lamina proligera* is a shallow, striated, colourless layer, lying on much whitish matter, constituting the greater part of the apothecium.

44. L. *vernalis*, ACH. *Thallus* thin, filmy, somewhat powdery, indeterminate, whitish-green or whitish; *apothecia* minute, losing their border, at length subglobose, crowded, somewhat pellucid, dusky or reddish brown. *Ach. L. Un. p.* 198. *Lichen sphæroides, Dicks. Cr. Fasc.* I. *p.* 9, *t.* 2, *f.* 2. *Lecidea viridescens, Hook. Eng. Flor. v.* 5, *p.* 189, (*not of Acharius*). *Lichen viridescens, Eng. Bot. t.* 2217.

On mosses, especially *Hypna;* not uncommon. Mugeot and Nestler's *Lecidea viridescens*, number 550, quite squares with Acharius's description, in his *Lich. Univ. p.* 200, and is distinct from any Irish specimen that I have seen. The structure of its "rugulose apothecia" is remarkable, for the *lamina proligera*, entire below, seems divided above into a few irregular processes, corresponding to the wrinkles on the surface of the disk. In our plant the disk under the lens appears studded with dark points; the *lamina proligera* is of considerable thickness, pale, almost colourless, striated, having in the centre of the globule a little opaque brownish matter. It invests the surface of *Hypna* sometimes to the extent of several inches in diameter.

45. L. *sulphurea*, ACH. *Thallus* tartareous, smooth, cracked, the edges of the cracks slightly raised, of a pale sulphur colour, black-edged; *apothecia* at length emerging; their disk at length convex, blackish-olive, pruinose; the proper border at length obliterated. *Ach. Syn. p.* 37. *Lecanora sulphurea, Ach. L. Un. p.* 399. *Eng. Bot. t.* 1186.

On siliceous rocks, Pigeon Island, Kenmare River; near Belfast, *Mr. Templeton.* A thallodal border to the apothecia is very observable; hence, perhaps, the shifting this species from under *Lecanora* to *Lecidea* might have been omitted by Acharius.

46 L. *expallens*, HOOK. *Thallus* between leprous and tartareous, cracked, powdery, pale sulphur coloured, whiter and thinner towards the border; *apothecia* sessile, adpressed, convex, and confluent; the border losing its thallodal powder. *Hook. Eng. Flor. v.* 5, *p.* 181. *Lichen orostheus, Eng. Bot. t.* 1549. *Lecanora expallens, Ach. Lich. Un. p.* 374.

On fir trees, at Derriquin, County of Kerry. This species too, perhaps, ranges as well under *Lecanora.* The *lamina proligera* is colourless and transparent.

47. L. *coronata*, HOOK. *Thallus* tartareous, cracked, of imbricated, somewhat lobed granulations, olive-brown; *apothecia* crowded, flattish, at length convex, depressed, reddish-brown; their border narrow, crenate, flexuose. *Hook. Eng. Flor.* 5, *p.* 182. *Eng. Bot. t.* 1246 *and t.* 1247. *Lecanora brunnea, Ach. L. Un. p.* 419.

Near Belfast, *Mr. Templeton;* near Bantry, *Miss Hutchins;* on rocks, at Blackwater Hill, County of Kerry. To the apothecia of this species, likewise, there is usually present a thallodal border. The variety from Blackwater Hill is singularly pulvinate, has the lobes distinct, pruinose, their surface uneven, with a *substratum* to the thallus dense, spongiose, brownish-black: the apothecia at first of a light orange colour, afterwards brownish, always semi-transparent by moisture. In a specimen from Observatory Inlet, north-west coast of America, collected by Dr. Scouler, the lobes of the thallus are light-brown, erect, fastigiate.

48. L. *quadricolor*, Hook. *Thallus* leprous, dull grey, with white, minute, somewhat tartareous granulations; *apothecia* sessile, minute, gelatinous, flesh-coloured, greenish or yellowish, at length blackish; the disk pruinose; the border pale. *Hook. Eng. Flor. v.* 5, *p.* 182. *Eng. Bot. t.* 1185. *Lecanora granulosa, var. a. Ach. L. Un. p.* 384.

On wet clay, near Belfast, *Mr. Templeton.* On bogs, near the roots of heath, County of Kerry; common. The apothecia may be observed of more than four different colours. The *buds* appear in large heaps, of a tawny colour, emitting a pale green powder. The granulations of the *thallus* are greenish when wet. Beneath a pruinose disk is a semi-transparent, slightly coloured *lamina proligera.*

49. L. *rupestris*, Ach. *Thallus* tartareous, thin, contiguous, indeterminate, grey or brownish-grey; *apothecia* minute, half immersed; the disk reddish brown, at length convex; the border at length obliterated. *Ach. L. Un. p.* 206. *Lichen calvus, Eng. Bot. t.* 948.

On limestone, near Belfast, *Mr. Templeton.* Dunkerron; not uncommon.

50. L. *irrubata*, Hook. *Thallus* between filmy and tartareous, thin, dispersed, or collected and cracked, wrinkled, greenish-grey; *apothecia* somewhat immersed, flattish, of a dusky orange colour, at length convex; the border evanescent. *Hook. Eng. Flor. v.* 5, *p.* 183. *Lichen rupestris, Eng. Bot. t.* 2245, (*without the synonyms.*)

On red sandstone, near Belfast, *Mr. Templeton;* on mortar of a wall near Tralee; and on siliceous rocks at Blackwater, County of Kerry.

51. L. *cornea*, Ach. *Thallus* cartilagineo-membranaceous, thin, white, smooth, determinate; *apothecia* numerous, sessile, reddish-brown, semitransparent; the border paler, thick, tumid, entire, sometimes waved. *Ach Meth. Lich. p.* 36. *Eng. Bot. t.* 965. *Lecidea carneola, Ach. L. Un. p.* 194, *the var. β. cornea.*

On cherries at Powerscourt; on ash at Dunkerron.

52. L. *ferruginea*, Hook. *Thallus* tartareous, thin, somewhat cracked, uneven, greyish-white; *apothecia* numerous, flattish, at length scarcely convex, of a rusty orange; the border paler red, at length waved. *Hook. Eng. Flor. v.* 5, *p.* 184. *Eng. Bot. t.* 1650. *Lecidea cinereo-fusca, Ach. L. Un. p.* 202.

On siliceous rocks; common. Too near the preceding.

53. L. *icmadophila*, ACH. *Thallus* filmy, with rotund granulations, greenish-white, uneven, indeterminate; *apothecia* subsessile, flattish, flesh-coloured; the disk at length wrinkled, and the thin border flexuose. *Ach. Lich. Un. p.* 191. *Eng. Bot. t.* 372.

On turf, under heath or furze; not uncommon. The apothecia are sometimes proliferous of others.

54. L. *marmorea*, ACH. *Thallus* tartareous, very thin, scarcely cracked, grey, indeterminate; *apothecia* urceolate; the disk of a salmon colour; the border very thick, raised, subinflexed, crenulate, pale. *Ach. L. Un. p.* 192. *Eng. Bot. t.* 739.

On limestone, common; also on the bark of old elms, at Dunkerron. The *lamina proligera* has a perithecium passing under it and rising up into an elevated border. The variety on elms has its minute apothecia almost entirely immersed; in this, too, the *lamina proligera*, dropping out, leaves a whitish urceolate perithecium.

55. L. *lutea*, HOOK. *Thallus* filmy, very thin, greyish, indeterminate, investing; *apothecia* flat or concave; the disk of a pale yellow; the border raised, whitish, waved. *Hook. Eng. Flor. v.* 5, *p.* 185. *Eng. Bot. t.* 1263. *Lec. melizæa*, *Ach. L. Un. p.* 194.

On mosses, near Bantry, *Miss Hutchins;* near Belfast, *Mr. Templeton.* In Askew Wood, County of Kerry. There is a perithecium quite analogous to that of the preceding, out of which the *lamina proligera* occasionally drops.

56. L. *ulmicola*, HOOK. *Thallus* leprous, coarsely mealy, rather thin, whitish, indeterminate; *apothecia* numerous, small, somewhat crowded, brownish-tawney, at length convex, and the border obliterated. *Hook. Eng. Flor. v.* 5, *p.* 185. *Eng. Bot. t.* 1426. *Lecidea luteo-alba*, *Ach. L. Un. p.* 207.

On limestone, at Dunkerron, County of Kerry. On calcareous rocks the thallus is more truly mealy; on elms, as in Mr. Harriman's specimens from Durham, it is between filmy and tartareous. This species is very nearly allied to *Lec. rupestris*, whose apothecia, however, are not so crowded, more convex, and immersed in the crust; besides their *lamina proligera* rests on a shallow, central, brownish-tawny mass, while in *L. ulmicola* it rests on a whitish substance.

57. L. *aurantiaca*, ACH. *Thallus* subtartareous, granulated, uneven, black-edged, whitish, or whitish-lemon coloured; *apothecia* sessile, crowded; the disk brownish-orange, at length convex; the border paler, entire. *Ach. L. Un. p.* 204. *Lichen salicinus*, *Eng. Bot. t.* 1305.

On a wall, near Belfast, *Mr. Templeton;* on rocks, near Bantry, *Miss Hutchins;* on willows and on sycamore at Derriquin, County of Kerry. The black edge of the thallus is best observed on the specimens on *Salix cinerea;* the thallus varies in thickness. The *lamina proligera* is slightly tinged of the same colour as the disk: a thallodal border is observable on old apothecia in Fries' specimens, number 41 of his *Lich. Suec. exsiccati.*

58. L. *erythrella*, Hook. *Thallus* tartareous, rather thin, orange, uneven, cracked into angular warts, determinate; the border very thin, investing, entire, of a paler hue; *apothecia* minute, crowded, sessile, at length convex; the disk of a deep orange; the border paler, entire. *Hook. Eng. Flor. v.* 5, *p.* 186. *Eng. Bot. t.* 1993.

On limestone at Dunkerron, County of Kerry; also at Tralee. Our specimens, which accord with the English Botany figure and description, differ remarkably from the preceding species by the nature of the border to the thallus. Besides the proper margin to the apothecia, a spurious *thallodal* exterior rim is usually observable. This species has a strong affinity to *Lecanora elegans.* I know not where to refer, if not to this species as its very young state, a *Lecidea* common on our limestone, whose apothecia are more minute, more pale, and whose thallus is in so thin a layer as to be nothing more than a citron-coloured very fine powder.

59. L. *picta.* *Thallus* leproso-tartareous, very thin, brownish-grey, minutely wrinkled, continuous, or scarcely cracked, rugged, determinate; *apothecia* minute, numerous, crowded, half immersed, very concave; the disk of a pale greenish dun colour, with a bright yellow *pruina;* the border very tumid, inflexed, of a bright yellow.

On siliceous slate, Dunkerron mountain, and elsewhere in the County of Kerry. The thallus is elevated into minute acute wrinkles or roundish pieces, whose edges are whitish and shining; when moist, under the lens greenish points appear. The apothecia concave, almost urceolate when dry, by the application of moisture have their disk elevated to nearly or altogether the level of their border. The border is commonly quite entire, yet sometimes slightly jagged. The opening of the apothecia is usually compressed, hence the border is waved. The *lamina proligera* is deep, and has upright *striæ;* it is colourless and pellucid. The patches are sometimes a foot or more in length. To the naked eye only a yellowish suffusion of the surface of the rock appears. It might be considered closely allied to *Lecanora vitellina* if it were not for the very different crust and dissimilar structure of the apothecia.

† † *Thallus subcrustaceous, or scaly, lobed.*

Under this head may have been arranged some species of the preceding section, with a black substratum and dispersed warts to the thallus. It comprehends the Psoræ of Hoffman.

60. L. *canescens*, Ach. *Thallus* tartareous, lobed at the edges, orbicular, plaited, white, with a glaucous powder in the centre; *apothecia* central, depressed, black, with a narrow border. *Ach. L. Un. p.* 216. *Dill. Musc. t.* 18, *f.* 17, A. *Dicks. Cr. Fasc.* I. *p.* 10, *t.* 2, *f.* 5. *Eng. Bot. t.* 582.

On tress, near Belfast, with apothecia, *Mr. Templeton;* at Rathronane, County of Tipperary, *Mr. G. S. Gough;* on walls common, but barren.

61. L. *cæruleo-nigricans.* *Thallus* of imbricated, tumid, obovate, pruinose scales, entire or crenate; *apothecia* marginal, black, at length convex and waved; the border narrow. *Lichen cæruleo-nigricans, Light. Eng. Bot. t.* 1139. *Psora ceruleo-nigricans, Hook. Eng. Flor. v.* 5, *p.* 192. *Lecidea vesicularis, Ach. L. Un. p.* 212.

On the North Wall, near Dublin, *Mr. Robert Brown.* At the sand hills of Baldoyle, near Dublin, abundant. β. *aromatica,* scales rather erect, fastigiate, of a brownish-grey, somewhat pruinose. *Lecidea aromatica, Hook. Eng. Flor. v.* 5, *p.* 177. *Lichen aromaticus Eng. Bot. t.* 1777. On walls, at Dunkerron Castle; on wet rocks in the mountains near Dunkerron. Sir James Smith, long since, affirmed the difficulty of separating what are above united into varieties: the propriety of which is strongly indicated by the identity of the remarkable odour that issues from the bruised recent apothecia of both, the scent being that of *Geranium robertianum,* though fainter.

62. L. *polytropa,* ACH. *Thallus* in dispersed clusters of tumid, wrinkled, somewhat lobed, pale, sulphur coloured, tartareous scales; *apothecia* conglomerate, plane or convex; their disk of a pale flesh colour; the border lighter, waved, and crenate. *Ach. Method. Lich. p.* 72. *Eng. Bot. t.* 1264, *the lower figure.*

On siliceous rocks, at Derriquin, County of Kerry. In our plant a black, powdery substratum to the thallus is observable, which I do not find in specimens from Ben. Lawers, collected by the late Mr. J. Mackay; besides, the scales of our plant are in distinct swoln clusters, which is not represented in the English Botany plate.

63. L. *fuliginosa.* Substratum of the *thallus* of numerous, short, fastigiate, simple or branched, bent filaments, black as their connecting thin membrane; scales minute, much scattered, flat, hemispherical, entire, of a dusky olive; *apothecia* black, convex, the border soon obliterated.

On siliceous slate at Dunkerron and Carig mountains, County of Kerry. Patches, at a little distance, appear like the rudiments of *Andræa Rothii;* from one to four inches in diameter. The filaments of the substratum when dry are black, when wet of a light brown; they are especially collected about the circumferences of the scales, and of the apothecia, to which they adhere: towards the margin of the patch they are short. The scales, larger than poppy seed, are commonly distinct, sometimes confluent, when wet they are almost gelatinous, otherwise they remind one of the scales of an *Endocarpon:* when cut, under the lens, they exhibit beneath a brown, semi-transparent, cortical layer, another more thick, quite green when wet, resting on much cortical matter, whose whiteness, as usual, is not altered by moisture. The apothecia are often subglobose, somewhat shining, situated single or two together on one of the scales, overhanging its side. Dissection shows the disk thin and black; the *lamina proligera* of a light brown, pellucid, striated, in a very thin layer; while the centre and greater part of the apothecium is occupied by much black matter, which occasionally protrudes, from beneath, beyond the base of the apothecium.

23. URCEOLARIA, *Ach.*

Thallus crustaceous, uniform. *Apothecia* orbiculate, immersed in the thallus; the disk concave; the border formed of the crust.

1. U. *scruposa*, ACH. *Thallus* tartareous, rugoso-plicate, granulate, cracked, grey; *apothecia* urceolate, immersed; the disk black, pruinose; the thallodal border inflexed, crenate. *Ach. Lich. Un. p.* 338. *Eng. Bot. t.* 94.

On siliceous rocks, at Dunkerron; on the sand hills at Portmarnock, near Dublin, abundant. Disk pruinose; *lamina proligera* thin, horny, with dark opaque vertical *striæ.*

2. U. *contorta*, ACH. *Thallus* of distinct, clustered, tumid, light-greenish scales, with elevated whitish edges; *apothecia* usually single, immersed in the scales; the disk brownish-black, pruinose; the thallodal border whitish and powdery. *U. Hoffmanni, β. contorta, Ach. L. Un. p.* 333. *Eng. Bot. t.* 1940, (*the greenish figure.*)

On limestone, at Portmarnock and Feltrim Hill, near Dublin; on basalt, near Belfast, *Mr. Templeton.* On granite, near Dublin.

3. U. *calcarea*, ACH. *Thallus* tartareous, powdery, cracked, even, determinate; the border narrow, of a lead-blue; *apothecia* immersed, numerous, minute, round, at length oblong, angular, and crooked; the disk black, pruinose. *Ach. L. Un. p.* 340. *Eng. Bot. t.* 820.

On limestone; common.

4. U. *cinerea*, ACH. *Thallus* tartareous, cracked, grey, rugged, determinate; the border broad, greenish, undulated; *apothecia* immersed, numerous, slightly concave, black, pruinose; thallodal margin elevated. *Ach. L. Un. p.* 336. *Eng. Bot. t.* 1751.

On siliceous rocks (never on calcareous); common. The surface of the thallus is more rugged and not so white as in the preceding; the border is much broader and of a different colour; the apothecia are larger, besides it does not occur on limestone.

5. U. *Acharii*, ACH. *Thallus* tartareous, smooth, cracked, white, with a snow-white thin border; *apothecia* immersed; the disk of a light flesh colour; the thallodal border tumid. *Ach. L. Un. p.* 331. *β.* thallus of a pale brick colour. *Eng. Bot. t.* 1087.

On rocks near the water's edge, Finnehy River. β. on drier rocks, exposed to the sun: neither variety is ever seen on limestone: the substratum of the *lamina proligera* is apt to turn from white to dark-brown.

6. U. *rufescens*, HOOK. *Thallus* indeterminate, thin, tartareous, tessellated, of a smoke-grey; *apothecia* small, dark-grey,

immersed, at length flat; with an elevated, entire border. *Hook. Eng. Flor. v.* 5, *p.* 173. *Lecidea rufescens, Borr. in Eng. Bot. Supp. t.* 2657. *Sagedia rufescens, Ach. L. Un. p.* 327.

On siliceous green sandstone, Cappamore, near Dunkerron, County of Kerry. Our plant agrees in every particular with the figure and description in English Botany, as well as with a specimen from Mr. Borrer, except in the colour of the thallus and of the disk, the last of which Acharius calls a dusky-black. Under the lens the disk is seen to be rough with elevated cellules; the *lamina proligera* is deep, plano-concave, pale, pellucid, full of minute cells; the disk extends, as in the Acharian figure, beyond the surface of the *lamina proligera.*

24. LECANORA, *Ach.*

Thallus crustaceous, uniform, or scaly and lobed at the margin. *Apothecia* orbiculate, sessile, their border formed of the thallus, tumid, elevated.

† *Thallus crustaceous, uniform.*

* *Apothecia black, or dark brown.*

1. L. *atra*, ACH. *Thallus* tartareous, scarcely determinate, granulato-areolate, whitish-grey; *apothecia* numerous, crowded, sessile; their disk and *lamina proligera* black, concave, at length plane; their border whitish, at length crenulate. *Ach. L. Un. p.* 344. *Eng. Bot. t.* 949. (*not good.*) •

On trees and on rocks, especially of the sea-shore; near Belfast, *Mr. Templeton;* in the South of Ireland, common. The thallus is liable to be dispersed.

2. L. *exigua*, HOOK. *Thallus* subtartareous, thin, uneven, of a dull greenish-ash colour; with a black, thin substratum exceeding at the edges; *apothecia* minute, crowded, blackish; the disk rough, at length convex, and the whitish border at length brownish. *Hook. Eng. Flor. v.* 5, *p.* 187. *Eng. Bot. t.* 1849. (*the figure on tile.*)

On tiles, near Portmarnock Church, County of Dublin; also on granite, near Dublin. The disk, dissected under the microscope, is brownish, rough; the *lamina proligera* of a very pale-brown, semi-transparent, and has usually dark opaque *striæ,* converging towards the centre of the apothecium, but not exceeding the *lamina.*

2. L. *periclea*, ACH. Substratum of the *thallus* very thin, dark brown; scales minute, very thin, snow-white; *apothecia* numerous, minute, black; the disk rough; the border snow-white, subpruinose. *Ach. L. Un. p.* 355. *Eng. Bot. t.* 1850.

On sandstone rocks, sea-shore, at Derriquin, County of Kerry. The substratum is unnoticed by Acharius; this species he seems to have found limited to the bark of trees, yet I think it highly probable that our rock plant is the same.

4. L. *multipuncta*, Ach. *Thallus* tartareous, rimoso-areolate, ash-coloured; the *areolæ* rough, with elevated, dark points; *apothecia* dark brown or black, at length convex. *Ach. L. Un. p.* 348.

The *areolæ* are, for the most part, tumid, subconfluent, and waved. The surface is of a lead-grey, and appears harsh and rough. The minute apothecia sometimes burst from a thallodal wart, as in *Lecanora coarctata.* A thin dark substratum may be observed as a limit to the thallus. Our specimens accord well with the description of Acharius.

5. L. *coarctata*, Ach. *Thallus* subtartareous, thin, cracked, scarcely determinate, greyish, subpulverulent; *apothecia*, the young rising as white powdery globules, opening on the tops; the disk concave, immersed, purplish-black, at length convex, pale reddish-brown; the border irregularly split, somewhat inflexed. *Ach. L. Un. p.* 352. *Eng. Bot. t.* 168.

On stones and rocks, near Belfast, *Mr. Templeton;* not uncommon in the South of Ireland, sometimes in situations occasionally inundated. The thallus in wet places has a permanent greenish hue, on red sandstone rocks brownish; but in all, the young apothecia are similar and like white globules. Perhaps the *Variolaria tiflea* of Acharius is not distinct. The *lamina proligera* is of a pale, dirty, wax hue, and remarkable for the size of the cellules with which it is striated.

6. L. *milvina*, Ach. *Thallus* tartareous, rather thin, areolate, grey or brownish-grey, with a black filmy substratum; *apothecia* minute, numerous; their disk slightly convex, dark brown; their border entire. *Ach. L. Un. p.* 358. *Borr. in Eng. Bot. Supp. t.* 2662, *f.* 1.

On siliceous rocks, near Bantry, *Miss Hutchins;* not uncommon about Dunkerron, near Kenmare. The patches are sometimes continuous and wide, at other times in dispersed, minute portions: the surface is occasionally uneven with irregular, eminent, whiter portions of thallus. The warts or granulations are scattered towards the edges, crowded and in contact in the centre, tumid, subject to split, angular, unpolished, grey, yet sometimes assuming a brown hue from numerous punctiform young apothecia, of a brown colour, with which they are studded. Apothecia numerous, sessile, very minute; the *lamina proligera,* dropping out, leaves a whitish thallodal cup. Dissection shows the disk to consist of minute, brown, elevated points, the terminations of opaque brown *striæ,* continued through the *lamina proligera,* which is pale and pellucid; the border is evidently thallodal, containing green parenchymatous matter. Different specimens vary much in the size of the apothecia.

7. L. *involuta.* *Thallus* tartareous, rather thin, in closely adjacent or scattered, whitish-grey, rather flat, unpolished, somewhat lobed, or crenate warts, indeterminate; *apothecia* few, at first globose, bursting on the summit, at length convex, pale rose-reddish, finally brownish, and the border almost obliterated.

On siliceous rocks, on Carig and Dunkerron mountains, County of Kerry. Sometimes there is a black substratum observable. Sometimes the thallus is in scattered, tumid, minute, scarcely lobed warts. When wet the thallus assumes a greenish hue, while the disk of the apothecia becomes apparently more gelatinous. A little after the opening of the globular scales that contain the apothecia, the disk of these appear concave, but in the full grown it is always convex; there is more of a rose colour in the disk than in any of the congeners. Dissection shows the entire of the *lamina proligera* to be of the same colour throughout; striated and semipellucid; from it the disk can scarcely be distinguished as a separate layer. From the preceding the lobed or crenate scales, the colour and convexity of the apothecia will keep the present distinct. While the same circumstances, besides the thicker tartareous thallus, and want of the inflexed border to the full grown apothecia will distinguish it from *L. coarctata*. The appearances on dissection are very different from those of either of the two foregoing species.

8. L. *glaucoma*, Ach. *Thallus* tartareous, areolate, rough, even, cream-coloured or greyish, determinate; *apothecia* numerous, convex; their disk blackish, and pruinose, at length, of a wax colour and flattish, and the border almost obliterated. *Ach. L. Un. p.* 362. *Eng. Bot. t.* 2156.

On rocks, on the shore at Bangor, near Belfast, *Mr. Templeton;* Blackwater Hill, County of Kerry. A black-olive edge is visible, especially where two *thalli* of this species meet. The edges of the *areolæ* are somewhat crenate: the *areolæ* themselves are powdery on the surface: the hue is often light-ochrey, or cream coloured. The apothecia are frequently nearly globose, always pruinose when young; the dark disk at length drops off and exposes the *lamina proligera* of a wax colour: dissection shows this last to be pale, striated and pellucid, and of the colour stated.

9. L. *subfusca*, Ach. *Thallus* tartareous, thin, cracked, subgranulate, uneven, grey, with a paler or white border; *apothecia* numerous, sessile, slightly convex, the disk brown or dusky, the border at length crenate. *Ach. L. Un. p.* 393. *Eng. Bot. t.* 2109.

On trees, most common; on siliceous rocks, common; on limestone or mortar, more rare. The varieties on trees are—1, the common appearance above defined: 2, with a very thin thallus, and very pale and pruinose disk to the apothecia, as on birch and hollies; this may be *Lecanora angulosa, Ach.* 3, with the thallus white, the apothecia subpedicellated, their border singularly thick and wrinkled, as also the backs, this occurs on oaks, at Askew wood, County of Kerry. 4, the thallus almost filmy, investing, of a greenish grey, in small patches, the apothecia minute, somewhat immersed; the disk pale, the border thick and entire; on *Salix cinerea* in Askew wood. There are besides, varieties on stone, of which the most remarkable are—5, with a thin dirty white investing thallus, with the *areolæ* flat in the centre, somewhat crenate at the edges, and the border white, fibrous, and with a silky lustre: this occurs on rocks occasionally inundated at Blackwater River, County of Kerry; also, larger in all its parts on siliceous stones on walls near Tralee. 6, on mortar, at Templeogue, near Dublin, with the thallus in scattered granules; the apothecia numerous, crowded, hence subangular, their disk concave, light brown, with a dense white *pruina*, their border even in the youngest and minutest, waved and crenulate. 7, crustless, apothecia very minute, dispersed; their disk olive, pruinose; on siliceous rocks at Derriquin, County of Kerry; the same, I suppose it is, that occurs on limestone on the seashore, often occupying the crust of *Thelotrema exanthematicum*, and looking like the minute apothecia of *Lecanora chloroleuca, Ach.* In all the different varieties dissection shows beneath a disk more or less intensely coloured, brownish, a *lamina proligera* of considerable thickness, of a pale waxy hue, semipellucid and striated.

* * *Apothecia red, yellow, or brown, (never black.)*

10. L. *ventosa*, Ach. *Thallus* tartareous, thick, rimoso-areolate, of a yellowish-ash colour, scarcely determinate; the *areolæ* convex, plaited, and warty; *apothecia* rather large, somewhat immersed, irregularly roundish; the disk flat or slightly tumid, brownish-red; border waved, narrow, entire. *Ach. L. Un. p.* 399. *Eng. Bot. t.* 906.

On granite near Dublin; *Dr. Whitley Stokes.* Slieve Croob, *Mr. Templeton.* In old dried specimens the thallus sometimes becomes quite brownish, and loses all yellowish hue. The *areolæ* are often confluent, always convex. The young unformed apothecia rise with a tumid border from the crust. The disk and *lamina proligera* are of the same colour, that is, a reddish-brown, the latter forms but a thin layer over much white cortical matter, and is semipellucid and striated.

11. L. *Hæmatomma*, Ach, *Thallus* leproso-tartareous, powdery, whitish or pale sulphur coloured, subdeterminate; *apothecia* immersed; the disk scarlet or brownish-red, at length convex; the border powdery, merging in the thallus. *Ach. L. Un. p.* 388. *Eng. Bot. t.* 486 *and t.* 223.

On rocks near Belfast, *Mr. Templeton;* on shaded rocks near Dunkerron, County of Kerry. The thallus becomes thinner and white towards the border; but when two *thalli* of this species meet (and sometimes independently of this,) there is a narrow black edge visible. The dissection of the apothecia exhibits appearances quite similar to what is observed in *Lecanora ventosa.* I find the thallus to vary in thickness, and sometimes to be completely tartareous and areolate; to vary too as to the degree in which the surface is powdery. I must confess, to me, the distinctions between this and the preceding are very unsatisfactory.

12. L. *cerina*, Ach. *Thallus* membranaceous, very thin, slightly granulated, indeterminate, greyish-white; *apothecia* scattered, sessile; the disk flat or concave, at length scarcely convex, of a wax-yellow; the border inflexed, with a white *pruina*, at length turning black. *Ach. L. Un. p.* 390. *Eng. Bot. t.* 627.

On trees, near Dublin, *Mr. Templeton;* in Kerry, not uncommon. On dissection the *lamina proligera* is seen to lie, in a lenticular form, on a base of cortical matter, and is of the same wax yellow, but more diluted than the disk throughout its substance; in younger apothecia it appears almost colourless. It is always pellucid and striated. The disk consists of a number of eminent points, with which it is somewhat rough. Moisture causes it to assume a convex shape.

13. L. *varia*, Ach. *Thallus* between powdery and tartareous, in scattered pieces, cracked, indeterminate, of a pale sulphur yellow; *apothecia* crowded, irregular, often confluent, slightly convex; the disk of a pale yellowish-green; the border powdery, waved, nearly obliterated. *Ach. L. Un. p.* 379, *var.* δ. *symmicta.*

On palings at Derriquin, County of Kerry. There appears to belong to the thallus a very thin white pulverulent substratum. The disk becomes of a dusky brown by age. It seems to accord with the Acharian variety above quoted. On dissection the central part of the apothecium is seen filled with much green parenchymatous matter as well as a little whitish cortical substance above and below the latter: the *lamina poligera* appears as a very thin convex layer almost colourless, pellucid and striated; the disk is somewhat more opaque, but seems to lose much of the yellowish tinge when saturated with moisture. The apothecia seem almost gelatinous when wet, and the thallus considerably greener. We have in Kerry a variety, as I suppose, very common on siliceous rocks, the thallus being less powdery, and rather scattered in somewhat tartareous, flattish granulations, in other respects agreeing with the species above defined.

14. L. *intricata*. Ach. Substratum of the *thallus* subtartareous, black, cracked; scales flat, crenato-sublobate, dispersed or collected into *areolæ*, whitish sulphur-coloured; *apothecia* plane or convex; the disk olive-coloured; the border waved. *Ach. L. Un. p.* 380. *Lichen polytropus, Eng. Bot. t.* 1264. *the upper figure.*

On old red sandstone rocks, at Kilceanagh, County of Kerry. The thallodal border to the apothecia is very distinct. The colour of the disk and of the border sometimes changes from olive to a brownish-orange. The apothecia commence as minute points on the scales. A variety, if not distinct species, occurs at Blackwater Hill, with the substratum dispersed and inconsiderable, the scales so minute as to be scarcely observable by the naked eye; they are besides nearly entire, the apothecia more convex, their border less waved, and above all, the diameters of the apothecia far exceeding that of the scales: it may for the present be termed the β. *comminuta*, of our species.

15. L. *parella*, Ach. *Thallus* tartareous, whitish, plaited and warty, subdeterminate; *apothecia* numerous, large, crowded, central; their disk pruinose, slightly flesh-coloured, concave; their border very thick, tumid, and even. *Ach. L. Un. p.* 370. *Eng. Bot. t.* 727.

On siliceous rocks; common. In shade the thallus becomes very thin and scattered, but the thickness of the thallodal border to the apothecia remains unaltered. On the bark of Sycamore at Derriquin, occurs a variety so exactly intermediate between this and *Variolaria* *velata*, *Ach.* that I know not to which it should be referred. Dissection shows the *lamina proligera* to rest on much cortical matter; to be slightly tinged as well as the disk, to be semitransparent and striated with longitudinal cellules, rather unusually wide: the disk is more opaque and rough with the *pruina*.

16. *L. tartarea*, Ach. *Thallus* tartareous, thick, the granulations tumid, crowded, pitted, indented or almost lobed, greyish-white; *apothecia* scattered, large; the disk flat or convex, often wrinkled, yellowish-brown inclining to flesh-colour; the border thick, inflexed, at length flexuose. *Ach. L. Un. p.* 371. *Eng. Bot. t.* 156 and *t.* 1634.

On siliceous rocks: not uncommon; also investing mosses or heath in subalpine situations when it becomes the *Lichen upsaliensis* of *Linn.* the *Lichen frigidus* of *Eng. Bot.* This varies in the thickness of its thallus, and occasionally has a strong resemblance to the preceding. On the full grown disk I do not observe the dense *pruina* constant in *Lec. parella.* Dissection shows the disk pale brown, rather opaque, the *lamina proligera* transparent and colourless, but striated, beneath which again is a layer of opaque yellowish-brown matter which principally imparts colour to the apothecia. When this species occurs on trees, it might seem to constitute the *Lecanora Turneri* of authors, were it not for the *pruina* on the disk of the latter as figured in *Eng. Bot. t.* 857, by which it approaches much nearer to the *Lecanora parella.* Buds yellowish-grey are not uncommon.

17. L. *citrina*, Ach. *Thallus* in aggregated leprous scales, somewhat granulated and lobed; buds powdery, bright lemon coloured, covering the surface; *apothecia* scattered, minute; the disk flat, at length convex, orange coloured; the border powdery, elevated, yellow. *Ach. L. Un. p.* 402. *Eng. Bot. t.* 1793.

On walls and rocks; common: on bark of fir, near Belfast, *Mr. Templeton.* The thallus seems renovated in winter. The apothecia are somewhat immersed in the powder of the buds, they are usually few. The disk is rather thick citron-coloured, the *lamina proligera* pale, semipellucid, and striated.

18. L. *vitellina*, Ach. *Thallus* in most minute, somewhat tartareous, sublobate, dispersed, shining, tumid scales, of a tawney-yellow; *apothecia* numerous, crowded, minute, flat or concave, at length convex; the disk of a pale dusky yellow, subpruinose; the border shining, tumid, of a full yellow, subflexuose. *Ach. L. Un. p.* 403. *Eng. Bot. t.* 1792.

On pales, also on basalt, near Belfast, *Mr. Templeton.* The old thallus, at least, presents a thick black substratum, which is much cracked. On old pales the apothecia reach a larger size, and their disk becomes brownish-black. Dissected, the disk appears of a brighter greenish-yellow than the *lamina proligera*, which is not destitute of a yellowish shade, and is semipellucid, pale, and striated. A variety occurs on rocks near Dunkerron, in which the black substratum is the most conspicuous part of the thallus, and fibrous or pulverulent; above this occur minute, dispersed, golden yellow, shining scales, lobed in a substellate manner; the apothecia are large, their disk usually convex.

† † *Thallus scaly, or crustaceous and lobed.*

19. L. *squamulosa*, Hook. *Thallus* of imbricated, tumid, uneven, subglobate, brownish-olive-grey scales, crowded in an areolate manner, subdeterminate; *apothecia* numerous, large, rather crowded, sunk, at length elevated; their disk flattish, dusky black; their border elevated, entire, wavy. *Hook. Eng. Fl. v.* 5, *p.* 187. *Lecanora badia a. Ach. Lich. Un. p.* 407. *Eng. Bot. t.* 2011.

On basalt, near Belfast, *Mr. Templeton.* The colour of the dry thallus is of a dusky brown, of the wet of a brownish-olive and much lighter. Under the lens the dissected disk appears rather opaque and deep brown, the *lamina proligera* of a reddish and white brown, semi-pellucid, and striated.

20. L. *muscorum*. *Thallus* foliaceous, very minute, irregularly stellate, lobed, glaucous grey; buds marginal and central, in a glaucous-grey powder; *apothecia* few, immersed among the buds, minute; the disk flat, of a dusky red; the border paler, entire. *Lichen muscorum, Jacquin Coll. tom.* IV. *pag.* 232, *t.* 7, *f.* 1. *Squamaria muscorum, Hook. Eng. Fl. v.* 5, *p.* 194. *Lecanora hypnorum, Ach. L. Un. p.* 417. *Lichen carnosus, Eng. Bot. t.* 1684.

On moss or stones in Askew wood, County of Kerry, with apothecia; the infertile state on trees in woods near Killarney, common. The buds appear first on the margin, afterwards on the surface of the *laciniæ* of the thallus. The wet surface is less white, somewhat greener. The apothecia are sometimes clustered, their disk at length dusky. The patches among moss on the barks of trees often extend to several inches.

21. L. *hypnorum*, Ach. *Thallus* of imbricated, crowded, greenish ash-coloured or brownish scales, minute, rounded, crenulated, and granulated with buds at the edges; *apothecia* large, flat, at length convex; the disk reddish brown; the border inflexed, crenate. *Ach. Syn. p.* 193. *Lecanora lepidora, a. Ach. L. Un. p.* 418. *Lichen hypnorum, Eng. Bot. t.* 740.

On mossy banks, near Belfast, *Mr. Templeton;* woods of Killarney, common. The apothecia are conspicuous from their size and crenate border, and rival those of the larger *Parmeliæ.*

22. L. *candelaria*, Ach. *Thallus* foliaceous, imbricated, the lobes crowded, laciniated and jagged, yellow; their margins bearing yellow powdery buds; *apothecia* flattish; the disk of a dusky yellow; the border brighter yellow, inflexed, waved. *Ach. L. Un. p.* 416. *Lichen candelarius, Linn. Eng. Bot. t.* 1794. *L. polycarpus, Eng. Bot. t.* 1795.

On trees, and on rocks; not uncommon. This appears to vary most singularly in the size and breadth of the thallus from the minute state on trees, whose division is scarcely perceptible to the naked eye, to the expanded state figured at *t.* 1795 of *Eng. Bot.* which is common on our limestone rocks near the sea. In the last case minute swellings of the fronds, which burst and display an orange colour at their tops occur, which perhaps are never present in the minuter state, nor in *Parmelia parietina*, to which otherwise it is strongly allied.

23. L. *murorum*, ACH. *Thallus* tartareous, orbicular, plicato-rugose, lobed in a radiating manner, cracked, adnate, the segments linear, bright yellow; *apothecia* central, crowded; the disk at length convex, of a reddish-tawney; the border paler, entire, waved. *Ach. L. Un. p.* 433. *Eng. Bot. t.* 2157.

On walls and on rocks; common.

24. L. *miniata*, ACH. *Thallus* in dispersed patches, tartareous, shortly lobed and subcrenate, reddish-orange, lobes adnate, thin, tumid, with a paler, somewhat fibrous edge; *apothecia* minute; their disk of a dusky reddish-orange, at length convex; their border paler, entire. *Ach. L. Un. p.* 434. *Hoffm. Pl. L. t.* 60, *f.* 1.

On siliceous rocks, Blackwater Hill, County of Kerry. Another state, scarcely variety, occurs on mortar and on limestone at Dunkerron, with the thallus in pieces, somewhat more orbicular, of a yellower tinge and the apothecia for the most part concave or flat, yet occasionally quite convex. But how it is to be distinguished from *Lecanora elegans, Ach.* I cannot conceive, though I have not ventured to quote this under our species. Again, growing intermixed with the last alluded to, appears a state in which the thallus is orbicular, adnate, pruinose, lemon-coloured, lobed in a radiating manner, the apothecia orange coloured, at length convex, the border at length obliterated; which thus corresponds to the descriptions of *Lecanora fulgens, Ach.*

25. L. *gelida*, ACH. *Thallus* tartareous, determinate, cracked, whitish-grey, lobed in a radiating manner, the edges dusky; buds in a greenish-olive powder in roundish excavations of the thallus; young *thalli* in central elevated flattish warts, cracked from their centre; *apothecia* concave; the disk of a pale red; the border at length crenate and waved. *Ach. L. Un. p.* 428. *Eng. Bot. t.* 699.

On siliceous rocks, Dunkerron mountain, with apothecia. In our specimens the conversion of the apothecia into central warts is observable. It is by no means an alpine or with us a northern species. Disk pruinose, at length dusky: *lamina proligera*, containing numerous, coloured, erect, variously shaped processes.

26. L. *saxicola*, ACH. *Thallus* between tartareous and foliaceous, lobed in a radiating manner, the lobes scaly, imbricated, of a pale greenish-brown; the edges elevated, whitish, powdery; *apothecia* crowded; the disk flattish, of a tawney-brown; the border paler, at length waved and crenate. *Ach. L. Un. p.* 43 . *Eng. Bot. t.* 169 .

On siliceous rocks, near Belfast, *Mr. Templeton*; in Kerry, common.

† † † *Thallus foliaceous, or membranaceous.*

25. PARMELIA, *Ach.*

Thallus foliaceous or membranaceous, stellato-lobate, or laciniated; *apothecia* orbiculate, sessile or substipulate, exteriorly as well as the margins formed of the thallus; the disk concave, coloured.

In the following arrangement, particular attention has been paid to the figure and situation of the *buds*, or those powdery collections, the parts of which, in almost every species, have been observed to expand into perfect individuals. In practice they are found to be more distinctive than the apothecia. The Genus *Borrera, Ach.* would have been most gladly retained if any solid character existed by which it could be separated from *Parmelia.*

* *Extremities of the lobes uninflated.*

1. *Buds indistinct.*

1. P. *parietina,* ACH. *Thallus* orbicular, yellow, pale beneath; the lobes flattish, dilated at the top, rounded, subcrenate; *apothecia* central; their disk dark orange; their border entire. *Ach. L. Un. p.* 463. *Eng. Bot. t.* 194.

On old fruit trees, and on others; also on rocks; common. This is unlike any other Irish *Parmelia.* I can find no satisfactory distinctions between it and that variety of *Lecanora candelaria* called *polycarpa.*

2. P. *herbacea,* ACH. *Thallus* orbicular, smooth, whitish-brown when dry, greenish when wet, pale and tomentose beneath; lobes incised, rotundato-laciniate, subcrenate; *apothecia* at first globular, projecting beneath as well as above the frond, at length sessile; their disk reddish-brown; their margins rugoso-crenate; their backs wrinkled. *Ach. L. U. p.* 459. *Lich. lætevirens, Eng. Bot. t.* 294. *P. glomulifera, Ach. L. Un. p.* 456. *Eng. Bot. t.* 293.

On old trees, also on rocks, in woods; common. This would range better under *Sticta* than *Parmelia,* and is at any rate a completely connecting link. The *glomeruli* on *P. glomulifera, Ach.* appear to be parasitic, and in the absence of any other character are quite insufficient to constitute a distinct species.

3. P. *pulverulenta,* ACH. *Thallus* stellate, brownish-grey, pruinose when dry, glaucous-greenish-grey when wet, with dark thick fibres beneath; the *laciniæ* linear, multifid, flattish, waved; *apothecia* central; their disk blackish, pruinose; their border thick, entire, inflexed, at length flexuose. *Ach. L. Un. p.* 473. *Eng. Bot. t.* 2063.

On trees; common. The buds probably are those granulations of the edges and surface of the old thallus, which flatten, and at length expand into new fronds. Varieties occur with the *pruina* very indistinct on the thallus, and sometimes altogether wanting from the disk of the apothecia.

4. P. *stellaris*, Ach. *Thallus* stellate, of a pale glaucous-grey, little changed when wet, with crowded, minute, white, subconfluent spots, at length wrinkled, white beneath, with grey fibres; the segments linear, rather convex, multifid; *apothecia* with a black disk; the border at length waved and crenate. *Ach. L. Un. p.* 476. *Eng. Bot. t.* 1697.

On trees and on stones; common. The pale whitish spots become, in very old plants, at first rotund solid granulations, which at length expand into new fronds. A *pruina* is sometimes observable on the disk of the apothecia.

2. *Buds granulate.*

5. P. *plumbea*, Ach. *Thallus* stellate, greyish-lead-coloured or greenish-grey, beneath thickly tomentose of an azure black, segments adpressed; their edges elevated, crenulate; *buds* in central grey granulations; *apothecia* central, often crowded, flattish; their disk brown; their border at length crenulate. *Ach. L. Un. p.* 466. *Eng. Bot. t.* 353. β. *affinis*. the border of the apothecia thick, elevated, inflexed, crenated. *Parmelia rubiginosa*, and *P. conoplea*, *Ach. L. Un. p.* 467. *Lichen affinis*, *Dicks. Cr. Fasc.* 4, *p.* 24, *t.* 12, *f.* 6. *Eng. Bot. t.* 983. γ. *tumescens*, thallus bluish-grey, thick and tufted in the centre; segments at the periphery minute; apothecia very concave. δ. *microphylla*. thallus very minute. *Lec. microphylla var. thriptophylla Ach. Syn. p.* 58.

α, and β, usually growing together on the same trees; common; γ. on rocks, at Blackwater, County of Kerry. δ. on rocks. Whenever buds occur on the thallus of any of the *Parmeliæ*, they are almost always likewise found on the backs and edges of the apothecia, and give these a new character. When granulations, in the present species, are absent, the margins of the apothecia, though waved, yet for the most part remain entire; constituting the *P. plumbea* of Acharius; when present, reappearing on the margins of the apothecia, they give to the edges a thick, elevated, crenate appearance constituting the *P. rubiginosa* of the same author. In the first case, (such is the liability of the apothecia to change their habit) I have observed, on the same thallus towards the edges, the shields with a perfectly thallodal margin of a greyish lead colour, and towards the centre quite black as well as the disk: in both cases spongy fibres proceeding from the backs and bases of the apothecia attached themselves to the thallus, giving an additional testimony to the thallodal nature of the margins of the apothecia. The variety γ. which I had at first taken for a distinct species, is very remarkable for its greyish-blue colour, its edges are thin and adpressed to the rock, while the centre is elevated more than one-fourth of an inch into a cushion consisting of coarse granulations, which at length assume white edges and become flattened, and among which the concave apothecia with crenate borders, are partially immersed. This I have traced by intermediate states to the variety β. At Cromaglown, Kerry, we have the state called *P. conoplea* by Acharius. On rocks in the site of old woods, intermediate varieties may be traced to δ. the *Placodium microphyllum* of Hooker.

6. P. *aquila*, ACH. *Thallus* stellate, tawney brown, beneath pale, yet with dark fibres; the segments multifid, linear, convex, flattish, and dilated towards the ends; *buds* in flattish, marginal granulations; *apothecia* dark brown; the border rough, incurved, subcrenate. *Ach. L. Un. p.* 488. *Eng. Bot. t.* 982. *(the colour bad.)*

On siliceous rocks; common.

3. *Buds, on thallodal solid podetia.*

7. P. *olivacea*, ACH. *Thallus* orbicular, olive-brown, white within, shining, lobes crenate, rough with *buds* on short solid podetia; *apothecia* flattish; the disk light brown; the border rough with buds. *Ach. L. Un. p.* 462. *Eng. Bot. t.* 2180.

On stones and on trees; common.

8. P. *conspersa*, ACH. *Thallus* stellate, greenish pale-yellow, with a black edge, smooth; *buds* somewhat central, roundish, dark olive, on pale solid podetia; *apothecia* central, brown, at length flattish; the margin irregular. *Ach. L. Un. p.* 486. *Eng. Bot. t.* 2097.

On siliceous rocks; not uncommon.

9. P. *proboscidea*. *Thallus* orbicular glaucous-green when wet, greyish-white when dry, with black fibres beneath; the lobes wide, flattish, rounded, crenate; the *buds* brownish on solid white podetia, each at length admitting a black *cilium; apothecia* narrowly stipitate; the disk concave; the border and back rough with buds. "*Lichen proboscideus, Allioni.—Scopol. Flor. Carn*" according to *Acharius in Lich. Un. p.* 459? *Lichen perforatus. Eng. Bot. t.* 2423. *Parmelia perforata, Hook. Eng. Fl. v.* 5, *p.* 200. *(not of Acharius.)*

On siliceous rocks and on trees, not uncommon; the apothecia rare, in four or five localities near Dunkerron. The figures of Dillenius *t.* 20, *f.* 42, 44, and *t.* 82, *f.* 3, as well as specimens from near Boston, North America, sent by Mr. Boott to Dr. Hooker, and most kindly communicated by the latter to me, and which I suppose constitute the true *P. perforata* of *Acharius*, differ from the British plant 1, by the thallus being destitute of stipitate buds; so also the apothecia whose margins are smooth and entire; 2, by the margins of the thallus being here and there laciniated, but not crenate; 3, by the lobes being more linear; 4, beneath, towards the edge, the upper and lower surfaces are nearly of the same colour, but in our plant the inferior surface is brownish-black; 5, by the greater thickness and toughness of the thallus; 6, by the finely reticulato-rugose upper surface; 7, by the broad tubular podetia to the apothecia; whereas, in our plant the podetia are narrow, short, and as it were strangulated; 8, the *cilia* of the margin of the thallus are longer and stouter; 9, the apothecia are marginal, in our plant central; 10, the constancy of the perforations of the disks of the apothecia, which in our plant almost never occurs, at least not oftener than what may be observed in *P. perlata*, *P. omphalodes*, or *P. saxatilis*. As the *Lichen proboscideus* of Linnæus is a *Gyrophora*, I have ventured to continue the trivial name of Allioni to our Parmelia, all chance of confusion being removed by the well marked differences of these genera.

10. P. *horrescens*. *Thallus* orbicular, substellate, greenish-grey when moist; greyish-white when dry, shining; lobes small incised, with circular sinuses, subcrenate; the tops deflexed, beneath light brown, with black fibres; the *buds* brown on whitish solid podetia, crowded towards the centre, and expanding into new individuals; *apothecia* unknown.

On the perpendicular faces of siliceous rocks, facing the South, on Dunkerron mountain, County of Kerry. The patches seldom exceed two inches in diameter, and are usually much less; the central region covered with brown buds, extends to very near the circumference, where the short small lobes of the shining greyish white thallus are visible as a narrow rim. It has a strong affinity to *P. saxatilis*, from which it is principally distinguished by the less linear lobes, which are never pitted or reticulated, but shining and deflexed at the tops; and so in characters would approach *P. lævigata* but for the decidedly different nature of the buds.

11. P *columnaris*. *Thallus* substellate, white, lobes minutely subpruinose, convex, multifid, covered about the centre with crowded erect, solid, white podetia, bearing slightly brown *buds*; *apothecia* unknown.

On wet rocks on *mosses* and *Jungermanniæ*, Dunkerron. To the naked eye little more is observable than a patch of the slightly brown, coarse granules, fringed around by a very narrow strip of milk-white laciniated frond. The lens detects a close columnar aggregation of the buds: these breaking off exhibit a greenish-grey fracture. Closely allied to *P. aleurites*, *Ach.* but I suppose distinct; 1, by the milk white thallus; 2, by the pruinose not shining, rather convex, not concave *laciniæ* of the frond; 3, by the pale brown (not dark) tops or buds on the larger, more fastigiate podetia.

12. P. *saxatilis*, Ach. *Thallus* substellated, glaucous-grey; the lobes retuse incised, reticulated with elevated ridges, bearing brown *buds* on whitish, short, solid podetia black and fibrous beneath; *apothecia* central, the disk brown, the border inflexed, rough with buds. *Ach. L. Un. p.* 469. *Eng. Bot. t.* 603. *(not good.)*

On rocks, stones, and trees; very common. This varies much in the size of the thallus and in the breadth of its segments. Apothecia though common, yet they are usually few in number; when old often very large and flexuose, and covered with buds: the colour of the disk, sometimes, nearly vermillion.

13. P. *furfuracea*, Ach. *Thallus* branched, greyish, the segments diffuse, linear, attenuated, channelled beneath, farinaceous, with pale olive *buds* on greyish solid cylindrical podetia.

Apothecia concave, substipitate, exteriorly rough with buds. *Ach. Meth. Lich. p.* 254. *Eng. Bot. t.* 984. *Borrera furfuracea. Ach. L. Un. p.* 500. *Eng. Hook. Fl. v.* 5, *p.* 223.

On granite, also on old trees at Lough Bray, near Dublin.

4. *Buds, powdery, on linear eruptions of the thallus.*

14. P. *sulcata.* *Thallus* orbicular, stellate, glaucous white when dry, glaucous green when wet, dark brown, with black fibres beneath, the lobes incised, somewhat concave, reticulated with elevated ridges; *buds* in oblong or linear eruptions, consisting of a greyish-brown fine powder. *Apothecia* central, substipitate; the disk brown; the exterior smooth, or with powdery buds. *Lich. saxatilis, Scop. Fl. Carn.* II. *p.* 388. *Jacq. Collect. tom.* IV. *t.* 20, *f.* 2.

On siliceous rocks, also on trees; not uncommon. This species far more common on rocks in the County of Kerry than on trees, attains a foot or more in diameter: it is proposed as distinct from *P. saxatilis*, as being larger, whiter, its segments less imbricated, more concave, more green when wet, the buds powdery, not stipitate, and consequently the backs of the apothecia far more smooth. Mr. Borrer informs me that in the list of Tunbridge Plants by Mr. Foster, it has been called *P. conspersa*, for which it was mistaken.

15. P. *rugosa.* *Thallus* very uneven, white, unaltered when wet; lobes broadly linear, imbricated, rugose at the base; *buds* in a grey powder along the tops of the ruptured *rugæ*; *apothecia* smooth, the margin crenate.

On heath in large tufts; also on rocks, with apothecia on the banks of Blackwater River, County of Kerry. Patches often a foot or more in diameter, attractive by their whiteness; the surface extremely uneven: the lobes are divaricating, linear though broad, their extremities oftener retuse than rounded, their *sinuses* somewhat oval. The more aged portions of the *thallus* above are closely wrinkled: the tops of the wrinkles sometimes appear abraded, and show a fine, pale ash-coloured powder; often, however, they are scarcely split above when the edges of the dark cracks exhibit minute, white, rotund or flat disks that soon assume the appearance of fronds. The apothecia are smooth exteriorly, except the very aged, on the backs of which buds may be observed with a lens. The nature of the buds, the linear lobes, and uneven surface of the frond, with their singularly wrinkled surface, distinguish this from *P. lævigata, Ach.* with which it may be easily confounded.

16. P. *omphalodes*, ACH. *Thallus* substellate, purplish-brown, shining, rough with dark points, black and fibrous beneath; the segments linear, flat, sinuato-multifid, subtruncate; the *buds* in a fine white powder in linear elevations of the thallus. *Apothecia* substipitate, concave; the disk brown; the border thin, incurved. *Ach. L. Un. p.* 469. *Eng. Bot. t.* 604.

On rocks in the mountains; common. Varies in the breadth of the *laciniæ*; a state occurs on granite at Lough Bray, County of Wicklow, with the *laciniæ* broad, convex, tumid and shining. It varies also in colour from a pale olive-grey to purplish-black. The black points on the thallus, though tolerably constant, are much to be suspected as parasitic bodies. I have seen apothecia an inch in diameter.

5. *Buds, powdery, in cup-shaped eruptions of the thallus.*

17. P. *caperata*, Ach. *Thallus* orbicular, pale yellowish-green, wrinkled in the centre; *buds* in a coarse powder in cup-shaped eruptions, at length confluent; lobes of the thallus remotely crenate. *Apothecia* very concave. *Ach. L. Un. p.* 457. *Eng. Bot. t.* 654.

On rocks and on trees, very common: the apothecia rare. On rocks I have measured patches more than five and a half feet broad, a diameter, greater than that of our largest native trees. On trees the thallus is usually more green. In every situation the central parts are brownish, the extreme edges smooth, shining and deflexed. I have met with apothecia on rocks at Dunkerron mountain, and on trees in Sir Edward Denny's Park, Tralee. The buds originate from minute round elevations, which split at the top, and soon assume a circular shape and become lined with a powder concolorous with the thallus: they are at length, confluent; they may be observed, about the centre of the frond, expanding into new individuals.

18. P. *Borreri*, Turn. *Thallus* orbicular, of a pale lead-grey; the lobes concave; *buds* powdery, greyish-white, in cup-shaped eruptions of the thallus, at length confluent. *Apothecia* with a tumid incurved border. *Turn. in Linn. Tr. v.* 9, *p.* 148, *t.* 13, *f.* 2. *Eng. Bot. t.* 1780.

On rocks at Dunkerron; on trees at Roughty, County of Kerry. The inferior surface is brownish-black: the edges of the *laciniæ* of the frond brown and elevated: the buds often confluent in old individuals towards the centre of the patch.

19. P. *ulothrix*, Ach. *Thallus* stellated, glaucous-grey, greenish when wet, with black fibres beneath; the segments narrow, linear, flattish, multifid; *buds* greenish-grey, in cup-shaped eruptions of the thallus. *Apothecia* dispersed, the disk dark brown, the border thick, entire, elevated. *Ach. L. Un. p.* 481. *Lichen virellus*, *Eng. Bot. t.* 1696.

On apple trees, near Belfast, *Mr. Templeton*. On elms at Dunkerron; also on walls and rocks. The apothecia, as long since noticed by Acharius, from their outer and inferior surface send down rootlets or fibres, analogous to those of the inferior side of the frond. I have never seen Irish specimens of *P. cycloselis* distinct from the present. The *Lecanora virella*, of Acharius would seem by his description to be very different. Our plant varies exceedingly in size.

20. P. *adglutinata*, Flœrke. *Thallus* stellate, finely membranaceous, very thin at the edges, adpressed; *buds* greenish or brownish-grey in cup-shaped eruptions of the thallus, at length confluent; *apothecia* unknown. *Flœrke in Mugeot et Nestler, St. Cr. Vogeso-Rh. No.* 543.

On ash and elm at Dunkerron, County of Kerry; frequent. There is a minute state of *P. ulothrix*, growing on the same trees with the present, and easily confounded with it. In *P. adglutinata*, however, the edges of the lobes are more wide, far more thin, and, as it were, pasted to the bark of the tree on which it grows; the thallus too is less deeply divided. The buds originating in round ruptures of the thallus, soon become confluent, run along the tops of the ridges that separate the lobes, and form on the central and greater portion of the frond a flattish, rimose cushion, of coarse brownish-grey powder.

21. P. *cæsia*, Ach. *Thallus* stellate, greyish-white; the *laciniæ* linear, convex, inciso-multifid; *buds* scattered in hemispherical, grey eruptions; *apothecia* with a thick, nearly entire border. *Ach. L. Un. p.* 479. *Eng. Bot. t.* 1052.

On rocks, very common in the County of Kerry. The buds are rarely confluent. The united patch of several fronds, sometimes a foot or more in diameter.

22. P. *Clementiana*, Ach. *Thallus* stellate, mealy, white, beneath pale, with blackish fibres; *laciniæ* flat, incised, crenate; *buds* in cup-shaped eruptions; *apothecia* flattish, with the border nearly entire. *Ach. L. Un. p.* 483. *L. Clementi*, *Eng. Bot. t.* 1779.

On rocks at Blackwater bridge, County of Kerry. I have never seen apothecia on Irish specimens. The patches are usually small, scattered, conspicuously white.

23. P. *tenella*, Ach. Meth. *Thallus* substellate, whitish-grey; the segments linear, subpinnatifid, ascending, dilated, vaulted and ciliated at the ends; *buds* in cup-shaped eruptions; *apothecia* substipitate. *Ach. Meth. Lich. p.* 250. *Borrera tenella*, *Lich. Un. p.* 498. *Eng. Bot. t.* 1351.

On trees, furze, heath, and stones; common. A variety found by *Mr. G. S. Gough* at Rathronane, County of Tipperary, is so intermediate between this an *P. ciliaris* (*Borrera* of authors) that I know not to which to refer it. The variety γ. *exempta*, *Ach. L. Un. p.* 499, occurs on Scotch fir at the Dargle. In this all the characters that distinguish *Borrera*, *Ach.* from his *Parmelia*, vanish; the *laciniæ* of the thallus are broad, flat, by no means "canaliculate beneath," nor are the *cilia* to be observed, except here and there, and in this case only with a lens; the buds are in curved, linear clusters and situated immediately below the margins of the terminating *laciniæ*. I am persuaded future observation will prove it to be a distinct species.

24. P. *flavicans*, Ach. Meth. *Thallus* erect, branched, tufted, tawney-yellow; the segments dichotomous, flexuose, attenuated; *buds* in cup-shaped eruptions; "*apothecia* submarginal." *Ach. Meth. Lich. p.* 268. *Borrera flavicans*, *Ach. L. Un. p.* 504. *Eng. Bot. t.* 2113.

On rocks and stones, near Waterford, *Dr. F. Barker*. Dublin mountains and Killiney Hill, near Dublin. The northern limit of this Lichen is much higher than generally supposed. Acharius had it from Jamaica, St. Domingo and Peru.

6. *Buds powdery, scattered all over the thallus.*

25. P. *lanuginosa*, ACH. *Thallus* orbicular, substellate, pale sulphur-coloured; the lobes flattish, rotundate, crenate; *buds* in a whitish or sulphur coloured powder; *apothecia* reddish; the border powdery. *Ach. L. Un. p.* 465. *Lichen membranaceus, Dicks. Cr. Fasc.* 2, *p.* 21, *t.* 6, *f.* 1.

On moss on moist rocks; not uncommon. Patches three or four inches in diameter, often on the perpendicular faces of rocks, varying from white to sulphur-coloured: the thallus is thin, beneath covered with a bluish-black down. Apothecia hitherto unknown in Ireland.

7. *Buds, in marginal powdery clusters.*

26. P. *perlata*, ACH. *Thallus* orbicular, substellate, glaucous-grey; the lobes rounded, crenate: the *buds* in greyish, elongato-curved, marginal clusters; *apothecia* substipitate, the border inflexed. *Ach. L. Un. p.* 458. *Eng. Bot. t.* 341.

On rocks, common; the apothecia by no means rare, near Dunkerron. Thallus often several inches in diameter; when the living plant is wet the lobes assume a greener tint. The buds marginal, in bent tufts are very characteristic; they appear on the barks of the aged apothecia, the border is much incurved.

27. P. *reticulata*. *Thallus* orbicular, substellate, glaucous-grey; the lobes round, entire, rather concave, dark at the edges; the surface marked with minute, whitish, elevated, reticulated lines; *buds* marginal and terminal, in coarse grained glaucous-greenish-grey collections; *apothecia* unknown.

On rocks, near Dunkerron, County of Kerry; common. Patches several inches or feet in diameter, corrugated and of a dusky purplish brown in the centre; the extreme lobes rather concave. The inferior surface is black and shaggy, except at the edges, where it is of a chesnut brown. Moisture renders the upper surface slightly greenish. The buds are in coarser grains than in the preceding, and extend from the margin towards the axis of the lobes: those grains are frequently observed to expand into perfect fronds; the *sinuses* of the lobes are oblong and somewhat jagged, whereas in *P. lævigata* they are circular and nearly entire, and the lobes themselves deflexed at the edges, but in our plant, the erect edges cause the terminating segments to appear concave. Besides, the reticulation of the upper surface distinguishes the present from every other known species. The apothecia are, hitherto, unknown.

27. P. *lævigata*, ACH. *Thallus* orbicular, substellate, glaucous white; lobes round, subcrenate, their extremities deflexed, their *sinuses* circular; *buds* in marginal, brownish, coarsely powdery collections; *apothecia* with the disk of a chesnut brown; the border crenate. *Ach. Syn. p.* 212. *Eng. Bot. t.* 1852.

On rocks, common; with apothecia at Dunkerron, County of Kerry.

The variety (if it be not quite distinct) most common in Kerry, differs from the English Botany figure, in having the segments of the lobes rounded, short, never linear; nor are the collections of buds situated on short proper *lobuli*. Although the mode of budding described is very common and characteristic, yet it likewise occurs in minute cup-shaped eruptions on the surface of the thallus. Apothecia are sometimes found on Dunkerron mountain an inch in diameter; on their backs and edges the buds reappear.

29. P. *speciosa*, Ach. *Thallus* stellated, smooth, glaucous-grey, white beneath; the segments flattish, linear, short; the *buds* terminal and marginal, in coarsely powdery brownish-grey collections; *apothecia* very concave; the border wrinkled and crenate. *Ach. L. Un. p.* 480. *Eng. Bot. t.* 1979.

On mosses, on rocks, and on stems of furze and of heath near the ground; common: the apothecia not very rare, near Dunkerron, County of Kerry. The buds usually issue from the terminal edges of the lobes; yet sometimes they form a dense thick collection in the centre of the thallus: the buds are observed to expand into new fronds on the backs of the aged apothecia. A smoothness of the upper surface, and multifid lobes with short linear segments, is very characteristic of this species.

30. P. *incurva*, Ach. *Thallus* stellate, of a pale sulphur colour; segments linear, very narrow, multifid, rather convex; *buds* in terminal and superficial roundish, whitish-yellow, powdery collections; *apothecia* minute, the border inflexed. *Ach. Lich. Suec. Prod. p.* 107. *P. recurva, Ach. L. Un. p.* 490. *Eng. Bot. t.* 1375.

On rocks, on Dunkerron mountain, common; the apothecia rather rare. The hemispherical buds are somewhat whiter than the surface of the thallus; the central parts of the frond usually turn dark. In our specimens the apothecia, from their minuteness, are invisible to the naked eye.

31. P. *sinuosa*, Ach. *Thallus* orbicular, stellate, of a sulphur-grey; segments dichotomous; *sinuses* of the lobes circular; *buds* terminal and marginal, in sulphur-grey finely-powdery collections; *apothecia* with a thin incurved crenate border. *P. sinuosa, Ach. Syn. p.* 207. *Lichen sinuosus, Eng. Bot. t.* 2050. *Lichen dædalens, Eng. Bot. t.* 2129.

On rocks at Glencar, with apothecia, *Mr. Joseph Taylor*. On Dunkerron mountain the apothecia were again repeatedly found. I suppose it is scarcely necessary to attach a mark of doubt to the synonymn of *L. dædaleus* of *Eng. Bot.* The young apothecia are sometimes brown at the border, and even some way down the exterior surface; this also occurs in *P. saxatilis*, in *P. omphalodes*, in *P. proboscidea* and in *P. lævigata*; a state that probably caused our species to be considered a *Placodium*.

* * *Extremities of the lobes inflated.*

32. P. *physodes*, Ach. *Thallus* orbicular, stellate, glaucous-white, smooth; segments linear, multifid, subcylindrical, with

inflated, brown, polished, acuminate tops; *buds* in collections of a greenish-white powder, on the inferior surface of the ends of the lobes; *apothecia* substipitate. *Ach. L. Un. p.* 492. *Eng. Bot. t.* 126.

On mountain rocks, common; apothecia were found near Belfast by *Mr. Templeton;* afterwards at Powerscourt Waterfall on trees, by *Mr. G. S. Gough.* The thallus varies much in the breadth of the *laciniæ;* it sometimes assumes a suberect growth.

33. P. *diatrypa*, Ach. *Thallus* orbicular, stellate, adpressed, greenish-white; the segments perforate, convex, linear, with expanded and inflated tops; *buds* in cup-shaped eruptions, their powder paler than the thallus; "*apothecia* light red, the border entire." *Ach. L. Un. p.* 493. *Eng. Bot. t.* 1248.

On wet rocks, on Dunkerron mountain. The perforations of the thallus in our specimens are on the tops of cylindrical elevations; and the edges are covered with buds in a coarse powder; in this respect they are unlike foreign specimens in which the buds in finer and paler powder are borne in cup-shaped eruptions. The apothecia have not yet been met with in Ireland.

26. Sticta. *Ach.*

Thallus foliaceous, or coriaceo-cartilaginous, hirsute beneath, and there furnished with hollow or bare spots (*cyphellæ*); *apothecia* orbiculate, sessile, exteriorly beneath as well as their margins formed of the thallus; the disk concave, coloured.

1. S. *macrophylla*, Fée. *Thallus* coriaceous, imbricated, pale-yellowish-green above, smooth and shining; the segments dilated, sinuated, entire; *apothecia* reddish-brown; the border at length narrow, waved, pale greenish-brown; *cyphellæ* urceolate, empty, whitish. *Fée, Crypt. des Ecorces Off. t.* 33, *f.* 1, according to *Hooker*, *Eng. Fl. p.* 5, *p.* 205. *Eng. Bot. t.* 2697.

On shady rocks, near Turk Cascade, and on Cromaglown, both near Killarney, *W. Wilson, Esq.* road side near Kenmare and Killarney, one mile from the tunnel eastward. Thallus tough when recent or moistened, in patches of two or more feet in diameter; the segments loosely overlapping, and then, sometimes, the upper adheres by its rootlets to the lower; those that are quite free, concave and channelled; the central and more fixed, flatter, and even convex; lobes subdichotomous, the terminating pair seldom equal, somewhat retuse, or the angles rounded. The surface of a glaucous grey, passing into dark brown when dry. Beneath the thallus is rough, with closely set fibres, that laterally united have a membranous appearance, expanding in a stellate form to attach themselves to subjacent matter. *Cyphellæ* scattered, globular, with a narrow, circular opening at the top; exteriorly brownish, the mouth white, and somewhat jagged; within an interior, delicate, white membrane may be observed, the bottom of which, under a lens, appears minutely mammillated. Apothecia usually marginal, sometimes on the middle of the segments of the thallus; they first appear as pale-chesnut coloured elevations of the cuticle, then with a central depression, and more raised above the surface; finally, sessile on a conical elevation of the thallus; the disk at length convex. On the centre of the disk, a cup with a corrugated margin sometimes occurs; it is figured by Dillenius *t.* 29, *f.* 115, I have not been able to observe any disk within to justify the appellation of young apothecia. Under the microscope, the disk appears lentiform; the *perithecium* like two layers of a chesnut-brown colour, enclosing a pale gelatinous *lamina*. States occur with segments as linear and concave as in *S. damæcornis Ach.* (as figured in *Hoffm. Pl. Lich. t.* 34, *f.* 1—7, and in Dillenius above quoted,) of which, I have little doubt, our plant is but a variety, and to which the specific name of *damæcornis* should perhaps be immediately restored.

2. S. *crocata,* Ach. *Thallus* coriaceous, sinuated, olive-brown, reticulated with elevated ridges, which, as well as the margins, bear lemon coloured buds; *cyphellæ* lemon-coloured; "*apothecia* brownish-black, with an entire border." *Ach. L. Un. p.* 447. *Eng. Bot.* t. 2110.

On basalt, at Fairhead, *Mr. Templeton.* On Pigeon Island, in the River Kenmare; in both instances without apothecia. The thallus above in cup-shaped eruptions contains the buds, in the form of a fine powder of a sulphur yellow; in this a strongly magnifying lens shows pale filaments, aggregate, attached by one end, overtopping the surface of the powder by the other: these must not be confounded with other bodies in the powder, having pale somewhat cylindrical stems on which are placed dark brown balls. The lemon coloured globules on the underside are not in any assigned cavities, and contain not the bodies just described, yet some are observed to turn of a dark olive colour.

3. S. *pulmonaria,* Hook. *Thallus* coriaceous, glaucous-green or pale, lacunoso-reticulate; lobes sinuato-laciniate, retuso-truncate; *buds* clustered, clavate, their tops brown; *cyphellæ,* pale, naked, convex spots; *apothecia* reddish-brown; their border at length of the same colour. *Hook. Eng. Fl. v.* 5, *p.* 206. S. *pulmonacea, Ach. L. Un. p.* 449. *Eng. Bot. t.* 572.

In woods; common. The buds may be observed to expand into new fronds; and the older apothecia sometimes exhibit rudiments of younger growing upon their disk. Patches occur in the woods near Killarney 3—4 feet in diameter, accompanying *Parmelia herbacea.*

4. S. *scrobiculata,* Ach. *Thallus* coriaceous, smooth, deeply and broadly lobed, glaucous-green; the margin subcrenate; *buds* submarginal, at length confluent, in a fine ash-grey powder; *cyphellæ* pale, naked, convex spots; *apothecia* scattered; the disk flattish, brown; the border subcrenate. *Ach. L. Un. p.* 453. *Eng. Bot. t.* 497.

On rocks near Bantry, *Miss Hutchins.* The buds at first appear as rough, subrotund, brown grains; but at length a coarse granular dark powder is found among them, probably an incipient state of germination.

5. S. *limbata*, Ach. *Thallus* coriaceous, suborbicular, glaucous-brown, the lobes rounded; the *buds* submarginal, confluent, in a greyish powder; *cyphellæ* concave, white. "*Apothecia* with the disk of a rust colour. *Ach.*" *Ach L. Un. p.* 454. *Eng. Bot. t.* 1104.

Near Belfast, *Mr. Templeton;* near Bantry, *Miss Hutchins.* The apothecia of this or of the preceding have never been found in Ireland. Our plant is strongly allied to *S. scrobiculata*, but at once distinguished by the characters of the *cyphellæ.*

6. S. *fuliginosa*, Ach. *Thallus* coriaceous, suborbicular, dark lurid-grey, broadly lobed; *buds* in dark-brown, subrotund, aggregate grains on the surface; *cyphellæ* concave, whitish; *apothecia* submarginal, concave, reddish-brown, their border subcrenate. *Ach. L. Un. p.* 454. *Eng. Bot. t.* 1103.

On rocks and trees common: apothecia on the road side between Kenmare and Killarney, on thallus growing on moss on a rock. The buds extend more over the surface than in any of the preceding, and are of a darker colour. *Cyphellæ* with a thin somewhat waved or crenate margin. Perithecium thick, giving a ragged border to the apothecia, of a paler colour than the disk, which in fresh specimens is of a brownish-orange colour; the outside of the apothecia have a fringed appearance arising from *rootlets* or *sustentacula* emitted as lanceolate, flattish, incised processes: thus the perithecium although of a different colour from the thallus, and rising out of it as an insulated body, yet is quite analogous in its functions. The portion of the thallus on which the apothecium rests, viewed from beneath, is coloured exactly as the perithecium. The apothecia seem to prefer the edges of the fronds.

7. S. *sylvatica*, Ach. *Thallus* foliaceous, deeply lobed, dusky, glaucous, the segments somewhat ascending; *buds* in minute rough substipitate grains often confluent in lines; *cyphellæ* concave, pale, yellowish-white, their margin lacerous. Apothecia "on marginal segments, vertical, convex, dark-brown. *Ach.*" *Ach L. Un. p.* 454. *Eng. Bot.* 2298.

On moss on shaded trunks of trees, common. The apothecia have not yet been discovered in Ireland. A pale variety occurs at Blackwater Bridge, County of Kerry, with the *laciniæ* of the thallus wide, and bears the same relation to our plant as *S. macrophylla* does to *S. damæcornis, Ach.*

8. S. *ciliata*. *Thallus* foliaceous, minute, dark olive-green when wet, glaucous-grey when dry; lobes rounded, nearly entire, ciliated; *buds* in dark-grey, minute granulations on the surface; *cyphellæ* immersed, concave; *apothecia* unknown.

On *Hypna* on the stems of trees in Askew wood, County of Kerry. The lobes scarcely exceed two-tenths of an inch in diameter, and are often much smaller; ascending through the moss, their edges are deflexed, and consequently the outline has a rounded appearance; ciliated with whitish, rather flat, linear, *tricæ;* entire, yet occasionally a minute, flat process issues suddenly from the edge, on which is borne a circular ciliate thallodal expansion, being the evolution of a bud. The upper surface is in part rough with contiguous buds. Beneath, the frond has elevated whitish veins, as in *Peltidea*, and in the interstices, a few scattered *cyphellæ* immersed below the surface, whose mouths however are elevated.

27. SOLORINA. *Ach.*

Thallus foliaceous, coriaceous, lobed, free, beneath having fibrous veins; *apothecia* subrotund, sessile, not bordered.

1. S. *saccata*, ACH. *Thallus* coriaceous, suborbicular, substellate, greyish-green, whitish and fibrous beneath; *buds* in minute, few, dispersed, rough, dark brown granules, at length bursting with a fine whitish powder; *apothecia* dark-brown, immersed. *Ach. L. Un. p.* 149. *Eng. Bot. t.* 228.

On Brandon Hill. Ben Bulben, *Mr. J. T. Mackay*. The apothecia burst up from beneath the cortical layer of the thallus, and at first receive a border from it; finally, however the apothecium sinks in the thallus. By drying the surface becomes of a reddish-brown.

28. PELTIDEA. *Ach.*

Thallus foliaceous, or coriaceo-membranaceous, lobed, having veins and fine soft fibres beneath; *apothecia* on proper lobules, orbiculate or oblongo-rotundate, the entire obliquely affixed on the thallus, by which, too, they are bordered.

1. P. *horizontalis*, ACH. *Thallus* smooth, glaucous brownish-green, beneath pale, reticulated with brown veins; fertile lobes short; *buds* in very minute, dark, scattered grains; *apothecia* flat, horizontal, transversely oblong. *Ach. L. Un. p.* 515. *Eng. Bot. t.* 888.

On rocks, near Killarney. County of Derry, *Mr. David Moore*.

2. P. *aphthosa*, ACH. *Thallus* smooth, glaucous-green, beneath reticulated with veins, dark towards the centre; *buds* in minute, scattered, dark brown, rough granules; *apothecia* large, ascending. *Ach. L. Un. p.* 516. *Eng. Bot. t.* 1119.

On rocks in moist situations: at Sallagh Braes, near Belfast, *Mr. Templeton*. County of Derry, *Mr. David Moore*. The brown buds may be observed expanding into new fronds, and even throwing out their rootlets on the surface of the thallus; the lobes are large and often oblong.

3. P. *canina*, ACH. *Thallus* coriaceous, glaucous-grey, greenish when moist, downy above, reticulated with dusky grey veins beneath; *apothecia* suberect, terminal, revolute. *Ach. L. Un. p.* 517 *and β. spuria, p.* 518. *Eng. Bot. t.* 2229 *and t.* 1542.

On moss, among grass, or on the ground, common. A state occurs at Dunkerron, never exceeding an inch in diameter, covering the wet side of a ditch for several yards in extent, bearing apothecia abundantly which agrees as well with the specimens of *P. venosa* in *Mougeot* and *Nestler*, and with some collected on Ben Lawers, by the late Mr. John

Mackay, as with the present species. The surface of the thallus is usually downy. A pruinose or downy membrane expanded across the involute surface of the apothecia at length bursts and displays the disk. It is sometimes sprinkled with minute granular buds, when it resembles too strongly *P. aphthosa.*

4. P. *polydactyla,* ACH. *Thallus* naked, smooth, beneath reticulated with brown veins; fertile lobules very numerous, crowded, their sides, as well as those of the brown, terminal, suberect; *apothecia* revolute. *Ach. L. Un. p.* 519. *Dill. Musc. t.* 28. *f.* 107, 108.

On moss, among grass and on banks; frequent. This species is very nearly allied to the preceding which sometimes has the apothecia as numerous and crowded.

29. NEPHROMA. *Ach.*

Thallus foliaceous or coriaceous, lobed; *apothecia* borne on proper lobules, orbiculate or reniform, the entire affixed to the inferior surface of the thallus, by which, too, they are bordered.

1. N. *resupinata,* ACH. *Thallus* coriaceous thin, greyish-brown when dry, dark-olive or lead-green when wet, the lobes imbricated; fertile lobules very short; *apothecia* with the disk of a red-brown. *Ach. L. Un. p.* 522. *Eng. Bot. t.* 305.

On rocks and on old trees; not uncommon. A pubescence of the inferior surface of the thallus, noticed by authors is not always distinctly observable; but, what is more remarkable, if that surface be broken or abraded, a white cottony substance is found in the interior. The buds appear as subrotund granules on the upper surface, oftener affecting the edges, presently flattening, and expanding into new fronds.

30. CETRARIA. *Ach.*

Thallus foliaceous or cartilagineo-membranaceous, lobate, laciniated, naked beneath. *Apothecia* orbiculate, obliquely adnate to the margin of the thallus, partly unattached beneath; the disk coloured; the border of the substance of the thallus.

1. C. *glauca,* ACH. *Thallus* membranaceous, somewhat shining, glaucous or brownish-grey, segments of the lobes lacero-incised, ascending; *buds* granular, mostly marginal, grey or brown; *apothecia* elevated, the border rugose. *Ach. L. Un. p.* 509. *Eng. Bot. t.* 1066, *and L. fallax, t.* 2373.

On rocks in the mountains; not uncommon. The aged thallus, in some states, is reticulato-lacunose. The buds usually marginal, are sometimes thinly scattered over the surface; they may be observed expanding into fronds. This plant varies much in colour of the upper as well as the edges of the lower surface, and remarkably in the degree of laciniation of those edges; they are entire in specimens from Mangerton, while in those from Carig mountain, they are more incised and finely cut than in the figure of English Botany.

2. C. *islandica*, ACH. *Thallus* membranaceous, rigid, erect, olive-brown, the segments entire, marginate, ciliated with stipitate *buds;* *apothecia* flat, the border narrow. *Ach. L. Un. p.* 512. *Eng. Bot. t.* 1330.

On the top of Mangerton. It grows more tufted in colder situations, than with us. The *cilia* are dark, often with a subrotund blacker and wider top, which may be observed in certain states expanding into new fronds.

31. GYROPHORA, *Ach.*

Thallus coriaceous or membranaceous, fixed by the centre. *Apothecia* orbiculate, sessile, with the border of their own substance, (not thallodal) the disk covered by a dark membrane, usually rough with gyrose plaits.

1. G. *pustulata*, ACH. *Thallus* coriaceous, with coarsely pruinose pustules at the centre, laciniated or pertuse towards the margin, greenish-grey; *buds* granular dark-brown, near the margin; *apothecia* broadly marginate, the disk even or tuberculate. *Ach. L. Un. p.* 226. *Eng. Bot. t.* 1283.

On rocks in the mountains; not uncommon, but without apothecia. The pustular appearance of the thallus is striking, but it likewise occurs in a lesser degree in *G. proboscidea, Ach.* in *G. vellea, Ach.* and even in some states of *G. heteroidea, Ach.* The degree of plication of the disk of the apothecia likewise varies in this genus. So, in *G. vellea* the disk is as in *Lecidea;* in *G. hirsuta, Ach.* out of the centre of the disk (which is that of a *Lecidea*) often rises a single young minute apothecium, sometimes two or more with margins gyrose by mutual pressure. The buds may be observed expanding into new fronds.

2. G. *erosa*, ACH. *Thallus* coriaceous, rugged, dark-brown, eroso-laciniated at the margin, beneath dark-grey, rough; *buds* granulate, rotundate, flattened at the top; *apothecia* with the gyrations on the disk grooved, the border nearly obliterated. *Ach. L. Un. p.* 224. *Eng. Bot. t.* 2066.

On Mangerton, on rocks; and on other high mountains not uncommon.

3. G. *cylindrica*, ACH. *Thallus* coriaceous, bluish or glaucous-grey, the segments subimbricate and ascending, ciliated with flattish linear acuminate *buds;* *apothecia* substipitate, the gyrations on the disk grooved. *Ach. L. Un. p.* 223. *Eng. Bot. t.* 522.

On rocks at Connavalla, *Dr. Whitley Stokes;* on Mangerton. The length of the *cilia* to the segments of the thallus is very remarkable; the *cilia* however appear to be truly buds, as their expansion into new fronds may, with a little care, be observed.

4. G. *pellita*, ACH. *Thallus* coriaceous, sinuato-lobate, smooth above, dark-grey or copper coloured, beneath with dark, rigid, branched fibres; *buds* mostly marginal in minute flat

pieces; *apothecia* subglobose, much plaited. *Ach. L. Un. p.* 228. *Eng. Bot. t.* 931.

On rocks on Tonlagee, County of Wicklow. Our specimens are tufted, the lobes sinuate, nearly linear. The cuticle sometimes has a minute subrotund rupture on the upper surface, where clusters of fibres, such as are found beneath the thallus, occur; among them, sometimes a minute frond may be observed to expand, but such new fronds are oftener observed at the margins of the thallus.

The foregoing account of the Lichens of Ireland would have been still more incomplete, but for the extensive collection of my lamented friend, the late *Mr. John Templeton*, of Cranmore, near Belfast, which his relict, *Mrs. Templeton*, most liberally placed at my disposal. I believe that thirty years ago his acquirements in the Natural History of organised beings rivalled that of any individual in Europe: these were by no means limited to diagnostic marks, but extended to all the laws and modifications of the living force. The frequent quotation of his authority in every preceding department of this Flora, is but a brief testimony of his diversified knowledge.

FLORA HIBERNICA.

PART THIRD.

ALGÆ.

[By W. H. Harvey, Esq.]

Ord. 99. ALGÆ. *Juss. (Linn. part of.)* Sea-weed Family.

Cellular plants, growing with very few exceptions in water; very variable in form, texture, colour, and in the organs of fructification.—*Plant* either a single cellule, or a number of cellules united by their extremities into series, and thus forming simple or branched *filaments;* or by lateral as well as terminal cohesion extended into *membranes*, which often assume a foliaceous character; or formed into cylindrical fronds.—*Texture* either gelatinous, membranaceous, cartilaginous, coriaceous, ligneous or horny.—*Colour* varying through every shade of red, green, olive, brown, &c.—*Fructification: granules* in various states of perfection or arrangement, either dispersed over the whole plant, or collected into little groups *(sori)*; or contained in distinct gelatinous receptacles, or membranaceous capsules, or forming moniliform filaments.

Synopsis of the Families and Genera.

Div. I.—Melanospermeæ. *Plants marine, foliaceous, strap-shaped, or filamentous, of an olive-brown or olive-green colour. Fructification contained in definite capsules or receptacles, or in distinct sori.*

Tribe I. Fucoideæ. *Plants coriaceous, robust, much branched or leafy, mostly bearing vesicles; structure fibrous. Fructifi-*

cation: opaque seeds imbedded in distinct receptacles and finally escaping by superficial pores.—(None of the Irish genera have distinct leaves.)

1. Cystoseira. *Vesicles* simple, innate in the branches. *Receptacles* small. *Seeds* in distinct cells.

2. Halidrys. *Vesicles* stalked, lanceolate, divided by transverse septa.

3. Fucus. *Vesicles* (when present) simple, immersed in the frond. *Receptacles* turgid, containing tubercles imbedded in mucus.

4. Himanthalia. *Frond* cup-shaped. *Receptacles* (frond-like) very long, dichotomously branched, strap-shaped.

Tribe II. Lichineæ. *Plants cartilaginous, flat, branched, (minute.) Fructification receptacles furnished with a terminal pore, containing pellucid seeds disposed in moniliform series.*

5. Lichina. Character the same as the Tribe.

Tribe III. Laminarieæ. *Fronds stipitate; stipes terminating in a foliaceous cleft or entire, occasionally midribbed expansion. Fruct. obscure.*

6. Alaria. *Frond* membranaceous, with a cartilaginous percurrent midrib.

7. Laminaria. *Frond* simple or cleft, destitute of distinct midrib.

Tribe IV. Sporochnoideæ. *Plants cartilaginous or membranaceous, much branched, inarticulate, bearing at some period of growth deciduous tufts of bright green filaments.*

8. Desmarestia. *Frond* plane or compressed, distichously branched, when young furnished with marginal deciduous tufts of fine green filaments, the branches set with marginal spines. *Grev.*

9. Dichloria. *Frond* cylindrical, filiform, cartilaginous, pinnated with opposite branches, becoming flaccid and of a verdigris green colour on exposure to the air. Fructification unknown. *Grev.*

10. Sporochnus. *Frond* filiform, cylindrical, or compressed, cartilagineo-membranaceous. *Fructification:* club-shaped, moniliform filaments radiating in scattered *warts,* or concentrated in distinct (mostly clavate stalked) *receptacles,* often terminated by a deciduous tuft of filaments. *Grev.*

TRIBE V. DICTYOTEÆ. *Plants membranaceous, flat, or cylindrical, of a highly reticulated structure. Fructification opaque, seeds with pellucid cases, ranged in lines, sori, or covering the whole frond.*

* *Root minute, scutate, naked.*

11. CHORDA. *Frond* simple, filiform, cylindrical, furnished at intervals with distinct *septa.*

12. ASPEROCOCCUS. *Frond* simple, tubular, (rarely compressed.)

13. PUNCTARIA. *Frond* simple, flat, foliaceous.

14. STRIARIA. *Frond* tubular, branched; *seeds* in transverse lines.

15. DICTYOSIPHON. *Frond* tubular, branched; *seeds* scattered.

* * *Root, a mass of woolly filaments.*

16. DICTYOTA. *Frond* ribless, dichotomous or irregularly cleft. *Seeds* scattered over the frond.

17. CUTLERIA. *Frond* ribless, irregularly cleft. *Fructification:* clusters of pedicellate capsules.

18. PADINA. *Frond* flabelliform, cleft. *Seeds* ranged in concentric lines.

19. HALISERIS. *Frond* midribbed, subdichotomous. *Seeds* disposed in sori or groups, mostly arranged in longitudinal lines.

TRIBE VI. ECTOCARPEÆ. *Plants filamentous, often capillary and confervoid, articulated, much branched. Fructification double: capsules and imbedded granules.*

20. CLADOSTEPHUS. *Stem* inarticulate, branched, whorled with short articulated ramuli.

21. SPHACELARIA. *Stem* articulate, branched, distichous, pinnated, rigid.

22. ECTOCARPUS. Excessively branched, capillary, flaccid, articulated.

23. MYRIOTRICHIA. *Stem* simple, articulate, flaccid, set with short quadrifarious ramuli.

TRIBE VII. CHORDARIEÆ. *Plants gelatinoso-cartilaginous, filiform or globose, composed of articulated filaments united together by a firm gelatine.*

24. CHORDARIA. *Frond* filiform; axis firmly gelatinous,

cellular. Circumference composed of simple, clavate, torulose, verticillate filaments.

25. TRICHOCLADIA. *Frond* filiform; axis loosely gelatinous, filamentous. Circumference composed of branched, coloured, torulose, verticillate filaments.

26. CORYNEPHORA. *Frond* globose or tuberose, hollow (not filled with gelatine.)

DIV. II. RHODOSPERMEÆ. *Plants marine (except one or two species of* TRENTEPOHLIA), *foliaceous, cylindrical, or filamentous, of a rose-red, purple or red-brown colour. Fructification in many genera double; primary, contained in capsules, receptacles, or immersed in the frond; secondary (when present) granules forming sori, or placed in distinct receptacles: seeds red or red-brown.*

TRIBE VIII. GLOIOCLADEÆ. *Plants gelatinous, filiform, entirely composed of articulated filaments, united into fronds by a hyaline gelatine (except in* CHÆTOSPORA, *in which genus only the ramuli have this structure.) Fructification globules of red seeds imbedded in the filaments of the periphery, to which they are attached.*

27. MESOGLOIA. *Frond* solid, gelatinous; the axis composed of longitudinal hyaline fibres; the periphery of radiating coloured filaments.

28. GLOIOSIPHONIA. *Frond* tubular, gelatinous; the periphery composed of radiating coloured filaments.

29. CHÆTOSPORA. *Frond* solid, subgelatinous; axis laxly cellular; the periphery membranaceous; ramuli composed of branched radiating filaments.

TRIBE IX. GASTROCARPEÆ. *Plants carnose or gelatinoso-membranaceous. Fructification: globules of red-seeds immersed in the substance of the frond.*

30. CATENELLA. *Frond* filiform, contracted as if jointed, in a moniliform manner.

31. DUMONTIA. *Frond* cylindrical, tubular, membranaceous, gelatinous within. *Fructification: globules* of seeds attached to the inner surface of the membrane of the frond.

32. HALYMENIA. *Frond* cylindrical, compressed, or flat, gelatinoso-membranaceous. *Globules* of seeds imbedded in the central substance of the frond.

33. IRIDÆA. *Frond* carnose, expanded, flat (not gelatinous.) *Globules* of seeds imbedded between the two coats of the frond.

TRIBE X. SPONGIOCARPEÆ. *Plants carnose, cylindrical, inarticulate. Fructification naked spongy warts, containing globules of red seeds. Root scutate.*

34. POLYIDES. The only genus.

TRIBE XI. FURCELLARIEÆ. *Plants carnose, cylindrical, inarticulate. Fructification terminal lanceolate receptacles. Root fibrous.*

35. FURCELLARIA. The only genus.

TRIBE XII. FLORIDEÆ. *Plants coriaceous, membranaceous, or cartilaginous; foliaceous or filiform, inarticulate. Fructification double;* 1. *Capsules:* 2. *granules, imbedded in the frond or indistinct receptacles.*

36. DELESSERIA. *Frond* leafy, with a percurrent, distinct midrib.

37. NITOPHYLLUM. *Frond* delicately membranaceous, expanded, ribless (often veined at the base). *Fructification* double: 1. Capsules: 2. ternate granules, disposed in distinct sori.

38. RHODOMENIA. *Frond* membranaceous, expanded, ribless. *Fructification* double: 1. Capsules; 2. ternate granules, disposed in cloud-like spots, or scattered over the whole frond.

39. PLOCAMIUM. *Frond* filiform, much branched, branches distichous, (ramuli pectinate.) *Fructification* double: 1. sphærical sessile capsules: 2. lateral process containing oblong granules.

40. ODONTHALIA. *Frond* subcartilaginous, plane, dark vinous-red, with an obsolete midrib, alternately toothed at the margin. *Fructification* marginal, double: 1. Capsules, containing pear-shaped seeds; 2. slender, pedicillate receptacles, containing ternate granules.

41. RHODOMELA. *Frond* cylindrical, cartilaginous, dark-red, (apices often involute.) *Fructification* double: 1. subglobose capsules, full of pear-shaped seeds; 2. pod-like receptacles, with imbedded ternate granules.

42. BONNEMAISONIA. *Frond* filiform, rose-red, delicate, much branched, branches pectinate, with distichous ciliæ. *Fructification:* ovate capsules, containing a mass of pyriform seeds fixed by their base.

43. LAURENCIA. *Frond* cylindrical, filiform, gelatinoso-cartilaginous, yellowish or purplish-red. *Fructification* double: 1. ovate capsules, containing pear-shaped seeds fixed by their base; 2. ternate granules imbedded in the ramuli.

44. Chylocladia. *Frond* filiform, cylindrical, (often constricted as if jointed,) gelatinoso-cartilaginous, pinky-red.—*Fructification* double: 1. capsules, with angular seeds; 2. imbedded ternate granules.

45. Gigartina. *Frond* cartilaginous, filiform, of a dull red colour. *Fructification* double: 1. capsules, with minute roundish seeds; 2. simple granules imbedded in the ramuli.

46. Chondrus. *Frond* cartilaginous, dilating upwards into flat, dichotomously-divided segments of a purplish or reddish colour. *Fructification:* roundish capsules.

47. Phyllophora. *Frond* proliferous from the disk, furnished with an obscure midrib.

48. Sphærococcus. *Frond* cartilaginous, two-edged, linear, distichously branched. *Fructification:* mucronate, pedicellate capsules, produced along the margin; seeds ovate.

49. Gelidium. *Frond* horny or cartilaginous, linear, more or less regularly pinnated. *Fructification* double: 1. capsules, imbedded in the ramuli; 2. ternate granules.

50. Ptilota. *Frond* compressed, filiform, pectinato-pinnate. *Fructification:* minute aggregated capsules, surrounded by an involucre.

Tribe XIII. Ceramieæ. *Plants filamentous, articulated.—Fructification double:* 1. *Capsules:* 2. *granules contained in receptacles, or in distorted ramuli.*

51. Polysiphonia. *Filaments* longitudinally striated with internal parallel tubes. *Fructification:* 1. ovate capsules; 2. granules in swollen ramuli.

52. Dasya. *Stems* inarticulate, cellulose, the ramuli articulated. *Fructification:* 1. ovate capsules: 2. lanceolate receptacles, including granules in transverse fasciæ.

53. Ceramium. *Filaments* reticulated, dissepiments opaque. *Fructification:* 1. roundish capsules, with membranous pericarps; 2. oblong granules imbedded in the ramuli.

54. Griffithsia. *Filaments* mostly dichotomous, dissepiments hyaline. *Fructification:* 1. clustered capsules with hyaline pericarps; 2. roundish, gelatinous, involucrated receptacles, including minute granules.

55. Calithamnion. *Filaments* mostly pinnated, dissepiments hyaline. *Fructification:* 1. scattered capsules with hyaline pericarps; 2. polymorphous receptacles, containing large granules.

56. Trentipohlia. *Filaments* minute, (mostly parasitical),

articulated, dissepiments hyaline. *Fructification* tufted, mostly terminal capsules; (one species inhabits fresh water.)

DIV. III. CHLOROSPERMEÆ. *Plants growing either in the sea, in fresh water or in damp ground, or in anomalous situations; filamentous, membranaceous, or amorphous; either hyaline, or (owing to the presence of an internal granular sporular mass) of a grass green, very rarely purple colour. Fructification green or purple sporules, either filling the frond, or collected into sporidia, rarely situated in external capsules.*

TRIBE XIV. LEMANIEÆ. *Plants growing in fresh water, filamentous, inarticulate, of a cellular substance. Fronds hollow, torulose at intervals. Fructification tufted, sporules affixed to the inner face of the tubular frond. (Inhabit alpine rivulets, rivers, &c.)*

57. LEMANIA. The only genus.

TRIBE XV. BATRACHOSPERMEÆ. *Plants growing in fresh water, filamentous, gelatinous. Fronds composed of aggregated, articulate, longitudinal fibres, whorled at intervals with short horizontal moniliform ramuli. Fructification: globular masses, composed of minute, dichotomous, moniliform strings of sporules.*

58. BATRACHOSPERMUM. The only British genus.

TRIBE XVI. CHÆTOPHOROIDEÆ. *Plants growing in fresh water or in the sea; filamentous, gelatinous. Filaments articulated, either free or collected into bundles, bound together by a more or less firm gelatine, thus forming amorphous fronds.—Fructification, minute capsules attached to the ramuli.*

59. BULBOCHÆTE. *Filaments* free, articulated; each articulation bearing at its truncate apex either an elongated, inarticulate, deciduous seta, or a sessile sphærical capsule.

60. DRAPARNALDIA. *Filaments* free, gelatinous; stems subhyaline, emitting at the joints pencils of coloured ramuli.

61. CHÆTOPHORA. *Filaments* collected into amorphous gelatinous fronds.

62. MYRIONEMA. *Plants* exceedingly minute, parasitical, consisting of a mass of simple, clavate, erect filaments, bound together by a firm gelatine.

TRIBE. XVII. CONFERVEÆ. *Plants growing in the sea or in fresh water, filamentous, articulate, destitute of distinct* *gelatine. Filaments simple or branched; articulations more or less filled with a granular coloured (mostly green) sporaceous mass, which affects various forms in different genera.*

63. Conferva. *Filaments* simple or branched, free (not connected by transverse tubes): articulations filled with a granular coloured mass (*Endochrome.*)

64. Mougeotia. *Filaments* simple, finally united by transverse tubes. *Endochrome* granular, at length forming roundish globules at the point of conjugation.

65. Tyndaridia. *Filaments* simple, finally inosculating by transverse tubes. *Endochrome* consisting of two roundish masses in each joint.

66. Zygnema. *Filaments* simple, finally inosculating by transverse tubes. *Endochrome* forming dotted spiral rings.

Tribe XVIII. Siphoneæ. *Fronds tubular, filamentous, inarticulate: filaments a horny or membranaceous substance, hyaline, filled with a green colouring matter; either free or formed into sponge-like fronds. Fructification, external often stalked vesicles full of granular matter.*

67. Codium. *Filaments* closely aggregated into a sponge-like frond. Marine.

68. Bryopsis. *Filaments* free, branched; branches pinnated. Marine.

69. Vaucheria. *Filaments* irregularly branched. *Fructification:* dark green vesicles attached to the frond.—Mostly in fresh water, rarely in the sea.

Tribe XIX. Oscillatorieæ. *Plants of a gelatinous substance and filamentous structure. Filaments slender, tubular, continuous, filled with a coloured, granular, transversely striate matter, seldom branched, though often agglutinated together so as to appear branched, usually massed together in broad floating or sessile strata of a very gelatinous nature; occasionally erect and tufted; and still more rarely collected in radiating series, bound together by firm gelatine, and then forming lobed or crustaceous fronds.*

70. Rivularia. *Frond* firmly gelatinous, globose or lobed; composed of filaments set in gelatine, radiating either from a fixed centre or base.

71. Stigonema. *Filaments* tufted, branched; branches transversely dotted.

72. Scytonema. *Filaments* brown, branched, flaccid, tough; transversely striate.

73. CALOTHRIX. *Filaments* short, tufted, green or purple, simple or pseudo-branched.

74. LYNGBYA. *Filaments* green or purple, decumbent, very long, flaccid.

75. OSCILLATORIA. *Filaments* rigid, acicular, radiating and oscillating from a slimy stratum.

TRIBE XX. ULVACEÆ. *Plants of a membranaceous or gelatinous substance and simple structure. Frond either a tubular or flat, filiform or expanded membrane; or a gelatinous amorphous mass; or composed of an innumerable number of gelatinous globules; hyaline, or, owing to the presence of fructification, of a green, purplish, or pink colour. Fructification: minute granules, which are either scattered through the frond, or arranged in fours, or strung together in many moniliform, filamentous series.*

* *Plants membranaceous, not gelatinous.*

76. PORPHYRA. *Frond* foliaceous, purple.

77. BANGIA. *Frond* linear, capillary, transversely dotted.

78. ENTEROMORPHA. *Frond* tubular, hollow, simple or branched, somewhat reticulated, green.

79. ULVA. *Frond* foliaceous, membranaceous, green.

* * *Plants gelatinous.*

80. TETRASPORA. *Frond* gelatinoso-membranaceous, expanded, green. Sporules in fours.

81. PALMELLA. *Frond* a polymorphous, gelatinous mass, filled with scattered granules (sometimes arranged in fours.)

82. NOSTOC. *Frond* coriaceo-gelatinous, lobed, hollow or solid, filled with curled moniliform filaments.

83. PROTOCOCCUS. *Plant* consisting of aggregated minute globules (filled with granules), and sessile on a gelatinous mass.

TRIBE XXI. BYSSOIDEÆ. *Plants of doubtful affinity, related to the Fungi. Filaments articulated, hyaline, or coloured. Fructification very obscure. They are found on rotten wood, among mosses, on damp ground, on glass, or in chemical solutions and other anomalous situations.*

84. BYSSOCLADIUM. *Filaments* arachnoid, radiating from a centre, with scattered external granules.

85. CHROOLEPUS. *Filaments* rigid, subsolid, opaque, torulose, falling to powder.

86. PROTONEMA. *Filaments* subarticulated, rooting (among mosses.)

87. HYGROCROCIS. *Filaments* hyaline, interwoven into a uniform membrane or gelatine.

88. LEPTOMITUS. *Filaments* hyaline, erect, parasitical.

DIV. IV. DIATOMACEÆ. *Plants growing in the sea or in fresh water, small, and for the most part very minute and parasitical; composed of rigid, fragile, more or less transparent corpuscles (frustula), variously united in parallel series, in circles, or in filaments; or scattered through a mucous mass; or disposed in longitudinal series, through gelatinous branched fronds.*

TRIBE XXII. DESMIDIEÆ. *Filaments cylindrical or angular, at length separating into frustula.*

89. MELOSEIRA. *Frustula* forming simple, pseudo-articulated filaments, constricted at the articulation.

TRIBE XXIII. FRAGILARIEÆ. *Frustula plane, rectilinear, disposed in circles or filaments.*

90. FRAGILARIA. *Frustula* forming densely striated, fragile filaments (not cohering at the angles.)

91. DIATOMA. *Frustula* forming fragile plane filaments, at length separating and cohering at the angles; or sessile, and arranged in a fasciculate or flabellate manner.

92. FRUSTULIA. *Frustula* linear, free or imbedded in a gelatinous mass.

TRIBE XXIV. STYLLARIEÆ. *Frustula plane, wedge-shaped, disposed in circles or fans.*

93. LICMOPHORA. *Frustula* stipitate, flabelliform.

94. MERIDION. *Frustula* united into circles or segments of circles, sessile.

TRIBE XXV. CYMBELLEÆ. *Frustula elliptical.*

95. GOMPHONEMA. *Frustula* subgeminate, terminating a very slender, simple or branched filament.

96. SCHIZONEMA. *Frustula* in longitudinal series, and enclosed in a simple or branched, filiform, mucous, membranaceous frond.

DIV. I. MELANOSPERMEÆ.

Plants marine; foliaceous, strap-shaped or filamentous; of an olive-brown or olive-green colour. ***Fructification*** contained in definite capsules or receptacles, or in distinct sori.

TRIBE I. FUCOIDEÆ.

Marine plants of an olive-brown colour, changing to black in the air; of a coriaceous or ligneous substance, densely fibrous, and tearing in a longitudinal direction. Root scutate; in some species accompanied by creeping fibres. Frond flat, compressed, or filiform, in many producing distinct leaves; and in most, furnished with vesicles or air-vessels. Fructification, sphærical clusters of opaque seeds, surrounded by a pellucid limbus, imbedded in distinct gelatinous receptacles, and finally escaping by external pores.

1. CYSTOSEIRA. *Ag.* Cystoseira.

Frond compressed or filiform, more or less foliaceous, but without distinct leaves. *Vesicles* simple, usually in series, innate in the substance of the branches. *Receptacles* small, cylindrical or lanceolate, terminal. *Seeds* in distinct cells.—Name, *κυστιν*, a *bladder*, and *σειρα*, a *chain;* from the moniliform arrangement of the vesicles.

1. C. *ericoides*, Ag. *Heath-like Cystoseira.* Frond cylindrical, branched, closely beset every where with very short, subulate, spinous branchlets; vesicles elliptical, solitary; receptacles swelling at the base of the terminal spines. *Grev.*—*Hook. Br. Fl. v.* ii. *p.* 265. *E. Bot. t.* 1968.

Rocks in the South and West of Ireland. Bantry Bay; *Miss Hutchins.* Miltown Malbay; *W. H. Harvey.*

2. C. *granulata*, Ag. *Granulated Cystoseira.* Frond cylindrical; stem bearing elliptical knobs, each producing a filiform, repeatedly dichotomo-pinnate branch, furnished with remote subulate spines; air-vessels elliptical-lanceolate, two or three connected together; receptacles elongated. *Grev. Hook. Br. Fl. v.* ii. *p.* 265. *E. Bot. t.* 2169.

Rocks, and rocky places left by the tide, in the west and south of Ireland. Bantry Bay; *Miss Hutchins.* Coast of Clare; *J. T. Mackay.* Black rocks, Portrush; *Mr. D. Moore.*

3. C. *fœniculacea*, Ag. *Fennel-leaved Cystoseira.* Frond compressed; stem destitute of tuberous knobs; branches more or less rough with little hard points, repeatedly pinnate, filiform; air vessels solitary, or about two together; receptacles

linear-lanceolate, mostly proceeding from the terminal vesicles. *Grev.* *Hook. Br. Fl. v.* ii. *p.* 265. *E. Bot. t.* 2131.

On the western and southern shores.

4. C. *fibrosa*, Ag. *Fibrous Cystoseira.* Frond bushy, very much branched; branches filiform, the terminating branchlets (or leaves) nearly plane; vesicles elliptical, mostly solitary; receptacles filiform, much elongated. *Grev.* *Hook. Br. Fl. v.* ii. *p.* 266. *E. Bot. t.* 1969.

On the western and southern shores. Galway Bay; *J. T. Mackay.* Bantry Bay; *Miss Hutchins.* Malbay; *W. H. Harvey.* Black rocks, Portrush; *Mr. D. Moore.*

2. HALIDRYS. *Lyngb.* Halidrys.

Frond compressed, coriaceous, linear, pinnated with distichous branches. *Air-vessels* lanceolate, stalked, divided by transverse septa. *Receptacles* lanceolate, stalked, compressed. *Seeds* in distinct cells. *Grev.* Name; αλς, αλις, the *sea*, and δρυς, an *oak*, or *tree.*

1. H. *siliquosa*, Lyngb. *Podded Halidrys.* Vesicles compressed, petiolated, linear-lanceolate, attenuated to a point. *Hook. Br. Fl. v.* ii. *p.* 266. *E. Bot. t.* 474.

Common on all our shores. The beautiful *Fucus Osmundaceus*, *Turn. t.* 105, from the North-west Coast of America, is a second species of this genus.

3. FUCUS. *Ag.* Fucus.

Frond plane, compressed or cylindrical, linear dichotomous, coriaceous. *Air-vessels* (when present) innate in the frond, simple. *Receptacles* terminal (except in *F. nodosus*), turgid, containing tubercles imbedded in mucus, and discharging their seeds by conspicuous pores. *Grev.*—Name; φυκος, a *sea-weed.*

1. F. *vesiculosus*, Linn. *Bladdered Fucus.* Frond coriaceous, flat, dichotomous, entire, furnished with a midrib; vesicles sphærical, (mostly in pairs); receptacles terminal, turgid, elliptical. *Hook. Br. Fl. v.* ii. *p.* 267. *E. Bot. t.* 1066.

Sea shores, very abundant. A very variable species: many of the varieties destitute of vesicles. Dr. Greville's *variety* " *Caterifructus*" is so completely intermediate with the following, that it may be debated to which species it most properly belongs.

2. F. *ceranoides*, Linn. *Horned Fucus.* Frond coriaceomembranaceous, entire, furnished with a midrib, pinnated with lateral, dichotomous, fruit-bearing branches, without vesicles; receptacles lanceolate, linear, acuminated. *Hook. Br. Fl. v.* ii. *p.* 267. *E. Bot. t.* 2115.

On the eastern shores. Belfast Lough; Wicklow, &c.—More membranaceous than the preceding, and apparently very different; yet I am by no means convinced that this is specifically distinct. Though it does not produce *regular vesicles*, I have frequently seen the membranes of the frond become separated and irregularly vesicated, giving the branches a *blistered* appearance.

3. F. *serratus*, Linn. *Serrated Fucus.* Frond coriaceous, flat, dichotomous, with a central rib, serrated; vesicles none; receptacles solitary, terminal, plane, serrated. *Hook. Br. Fl. v.* ii. *p.* 267. *E. Bot. t.* 1221.

Rocky shores, abundant.

4. F. *nodosus*, Linn. *Knotted Fucus.* Frond compressed, subdichotomous, somewhat pinnately branched; vesicles large, remote; receptacles lateral, distichous, pedunculate. *Hook. Br. Fl. v.* ii. *p.* 268. *E. Bot. t.* 570.

Rocky shores, abundant.

5. F. *Mackaii*, Turn. *Mackay's Fucus.* Frond compresso-cylindrical, excessively branched, subdichotomous, coriaceous; vesicles elliptical (often wanting), receptacles unknown. *Hook. Br. Fl. v.* ii. *p.* 268. *E. Bot. t.* 1927.

Sea-shores. Cunnamara; *J. T. Mackay.* A very remarkable looking plant, yet I fear scarcely specifically distinct from the preceding.

6. F. *canaliculatus*, Linn. *Channelled Fucus.* Frond linear, narrow, channelled, dichotomous, without midrib or vesicles; receptacles terminal, oblong, turgid. *Hook. Br. Fl. v.* ii. *p.* 268. *E. Bot. t.* 823.

Rocky shores, abundant. The smallest of the British species, and easily distinguished by its channelled fronds.

7. F. *tuberculatus*, Huds. *Tuberculated Fucus.* Frond cylindrical, naked below, dichotomous above, the axils obtuse; vesicles elliptical at the base of the receptacles (often absent); receptacles elongated, cylindrical, terminal. *Hook. Br. Fl. v.* ii. *p.* 269. *Turn. Hist. Fuc. t.* 7.

Rocky shores, rather rare. North of Ireland; *Dr. Scott.* Bantry bay; *Miss Hutchins.* Very abundant on the west of the County of Clare.—*Root* accompanied by creeping fibres. The *vesicles*, which have not been noticed by preceding authors, are abundantly produced in the West of Ireland, where this plant is very common, and reaches a large size.

4. HIMANTHALIA. *Lyngb.* Himanthalia.

Frond coriaceous, orbicular, peziziform. *Vesicles* none. *Receptacles* (frond-like), elongated, strap-shaped, compressed, dichotomously divided, springing from the centre of the frond, containing immersed tubercles furnished with a pore. *Grev.* —Name; *ἱμας, αντος*, a *strap*, and *αλς*, the *sea*.

1. H. *lorea*, Lyngb. *Strap-shaped Himanthalia or Sea-thongs. Hook. Br. Fl. v.* ii. *p.* 269. *Turn. Hist. t.* 196.

Rocky shores. *Fronds* one or two inches high, perennial, emitting receptacles from two to ten feet in length, which fall off annually.

TRIBE II. LICHINEÆ.

Marine plants of a blackish green colour, changing to black in the air; cartilaginous, minute, without distinct leaves. Fructification: receptacles furnished with a terminal pore, "and filled with a colourless gelatinous mass of very fine filaments, among which pellucid oval or oblong seeds are disposed in many radiating moniliform series." Grev.—I am not at all satisfied about the true situation of this small tribe, but place it immediately after the Fucoideæ in compliance with the ideas of my valued friend Dr. Greville. In many respects, especially in the structure of the capsules or receptacles, it approaches some genera of *Lichenes.*

3. LICHINA. *Ag.* Lichina.

Frond cartilaginous, blackish-green, dichotomous. *Fruct.*: roundish capsules (receptacles) of the same colour, containing radiating moniliform lines of pellucid *seeds*, imbedded in a gelatinous mass of filaments. *Grev.*—Name; an alteration of *Lichen*, to which tribe this bears a great resemblance.

1. L. *pygmæa*, Ag. *Dwarf Lichina.* Frond between flat and compressed; capsules globose. *Grev. Hook. Br. Fl. v.* ii. *p.* 270. *E. Bot. t.* 1332.

Rocks uncovered at low water mark, common. Forms little roundish tufts, about half an inch in height. *Fronds* crisp, dark green.

2. L. *confinis*, Ag. *Least Lichina.* Frond cylindrical; capsules terminal, oval. *Grev. Hook. Br. Fl. v.* ii. *p.* 270. *E. Bot. t.* 2575.

Rocks, near high water mark, not rare. Smaller than the last, and of a darker colour. Dr. Greville has taken much pains to distinguish this from the preceding, and has figured both admirably in his beautiful *Crypt. Flora* (*t.* 219 and 221); but I rather incline to Dr. Hooker's opinion, that their distinguishing characters depend on difference of locality.

TRIBE III. LAMINARIEÆ.

Plants marine, of an olive-brown or olive-green colour, becoming rather darker on exposure; coriaceous or membranaceous, fibroso-cellular, not reticulated. Root lobed or fibrous. Frond stipitate, terminating in a leaflike expansion which is often cleft, and occasion-

ally midribbed, or variously costate. Fructification obscure; "as far as hitherto known, either seeds mixed with a mass of vertical, jointed filaments or roundish granules, without filaments; forming, in both cases, dense-spreading spots or sori, on the surface of some part of the frond." Grev.

6. ALARIA. *Grev.* Alaria.

Frond membranaceous, furnished with a percurrent, cartilaginous midrib, the stem pinnated with distinct leaflets. *Fruct.:* pyriform *seeds*, vertically arranged in the incrassated leaflets. *Grev.*—Name, *ala*, a *wing*, from the winged base of the frond.

1. A. *esculenta*, Grev. *Esculent Alaria.* Frond linear, ensiform, entire at the margin; pinnæ linear, oblong, fleshy." *Hook.—Br. Fl. v.* ii. *p.* 271. *E. Bot. t.* 1759.

Northern and western shores, abundant. A beautiful plant as it waves freely in the water. The *frond* is 3—10 or even 20 feet in length, and 1—6 inches in breadth, consisting of a membranaceous, very easily lacerated leaf, with a thick cartilaginous midrib. It is an annual.

7. LAMINARIA. *Lamour.* Laminaria.

Frond coriaceous (rarely membranaceous), plane, expanded, without a midrib. *Fruct.: seeds* or *granules* forming dense sori or spots, and imbedded in the thickened surface of some part of the frond. *Grev.*—Name; *lamina*, a *thin plate.*

1. L. *digitata*, Lamour. *Cleft Laminaria.* Stipes coarse, elongated, cylindrical, expanding into a broad roundish lamina, which is deeply cleft into numerous linear segments. *Hook. Br. Fl. v.* ii. *p.* 271. *E. Bot. t.* 2274.

Sea-shores, in deep water. 2—12 feet long, olive brown.

2. L. *bulbosa*, Lamour. *Bulbous Laminaria.* Root hollow, swollen, tuberculated, bulb-like; stipes flat, two-edged, twisted, and deeply sinuated near the base, expanding into a broad oblong lamina, which is deeply cleft into numerous linear segments. *Hook. Br. Fl. v.* ii. *p.* 271. *E. Bot. t.* 1760.

Sea-shores; not uncommon on any of our coasts.

3. L. *saccharina*, Lamour. *Sugary Laminaria.* Root fibrous; stipes cylindrical, elongated, expanding into a cartilaginous, flat, oblong, entire frond. *Hook. Br. Fl. v.* ii. *p.* 272. *Turn. Hist. t.* 163.

Sea-shores, very common.

4. L. *Phyllitis*, Lamour. *Thin-leaved Laminaria.* Root fibrous; stipes somewhat compressed, short, expanding into a

thin, membranaceous, linear-lanceolate, entire frond. *Hook. Br. Fl. v.* ii. *p.* 272. *E. Bot. t.* 1331. *Turn. Hist. t.* 164.

Sea shores, rare. Larne; *Mr. Templeton.* Bantry bay; *Miss Hutchins.* Black rocks, Portstewart, County of Derry; *Mr. D. Moore.* Distinguished from the preceding by its thin membranaceous substance and lanceolate outline; characters which are, I fear, not to be depended on.

TRIBE IV. SPOROCHNOIDEÆ.

Plants marine, olivaceous or yellowish-green, much branched, the branches mostly distichous, foliaceous, compressed, or filiform, inarticulate, becoming flaccid on exposure to the air, "in some cases acquiring, under such circumstances, a verdigris-green colour, and then possessing the property of rapidly decomposing other delicate Algæ in contact with them." Fronds generally bearing, at some period of their growth, deciduous tufts of bright green filaments. Fructification imperfectly known; "composed of club-shaped, moniliform, radiating filaments, either forming sessile warts, or arranged concentrically in little stalked, club-shaped bodies, terminated by pencils of delicate fibres. Grev.—A small and natural family, in many respects allied to the Laminarieæ, from which tribe it is, however, well distinguished by the much branched frond, which produces, in its young state, delicate tufts of fibres, and does not become darker in drying or decay.

8. DESMARESTIA. *Lamour.* Desmarestia.

Frond plane or compressed, distichously branched; when young, furnished with marginal deciduous tufts of fine green filaments, the branches set with marginal spines. *Grev.*—*Fruct.* unknown.—Name; in honour of A. G. Desmarest, a French Naturalist.

1. D. *ligulata*, Lamour. *Ligulate Desmarestia.* Frond much branched, plane, with an obscure midrib, 3—4 times pinnated; pinnæ and pinnulæ linear-lanceolate, opposite, and (as well as every division of the frond) attenuated at the base. *Hook. Br. Fl. v.* ii. *p.* 273. *E. Bot. t.* 1636.

Not uncommon on any of our shores from the Giant's Causeway to Bantry bay. *Frond* 1—6 feet long.

2. D. *aculeata*, Lamour. *Thorny Desmarestia.* Frond excessively branched, branches alternate or irregular, very narrow, linear, compressed, many times divided in a pinnate manner; margin of the pinnules set with alternate spines. *Hook. Br. Fl. v.* ii. *p.* 273. *E. Bot. t.* 2445.

Sea-shores, common. The marginal spines are not produced till the second year, but, in place of them, the young plants are clothed with beautiful tufts of bright green fibres.

9. DICHLORIA. *Grev.* Dichloria.

Frond cylindrical, filiform, cartilaginous, pinnated with opposite branches, becoming flaccid and of a verdigris-green colour on exposure to the air. *Fruct.* unknown. *Grev.*—Name; *δις*, *twice*, and *χλωρις*, *green*, "in allusion to its singular change of colour."

1. D. *viridis*, Grev. *Green Dichloria*. *Hook. Br. Fl. v.* ii. *p.* 274. *E. Bot. t.* 1669. *Turn. Hist. t.* 97.

Sea-coast. Near Belfast; *Dr. Drummond.* Bantry bay; *Miss Hutchins.*—1—2 feet long. *Frond* excessively branched, capillary, all the divisions exactly opposite.

10. SPOROCHNUS. *Ag.* Sporochnus.

Frond filiform, cylindrical or compressed, cartilagineo-membranaceous. *Fruct.:* club-shaped, moniliform filaments, radiating in scattered *warts*, or concentrated in distinct (mostly clavate, stalked) *receptacles*, often terminated by a deciduous tuft of filaments. *Grev.*—Name; *σπορος* a *seed* or *sporule*, and *χνοος*, *wool*, in allusion to the tufts of fibres terminating the fructifications.

1. S. *pedunculatus*, Ag. *Pedunculate Sporochnus.* Frond slender, alternately branched in a pinnate manner; branches set with alternate, distichous, clavate receptacles, which are terminated with tufts of articulated fibres. *Hook. Br. Fl. v.* ii. *p.* 274. *E. Bot. t.* 345.

Marine rocks, rare. Bantry bay; *Miss Hutchins.* Killiney, very rare; *W. H. Harvey.* Mouth of the river Bann, among rejectamenta; *Mr. D. Moore.*

2. S. *villosus*, Ag. *Hairy Sporochnus.* Frond slender, once or twice pinnate; branches and pinnæ opposite, set with numerous whorls of dense branched filaments. *Hook. Br. Fl. v.* ii. *p.* 274. *E. Bot. t.* 546.

Very rare. Wicklow; *W. H. Harvey.*

3. S. *rhizodes*, Ag. *Root-like Sporochnus.* Frond rather robust, irregularly branched; branches subdichotomous, flexuose, covered with the wart-like fructification. *Hook. Br. Fl. v.* ii. *p.* 275. *E. Bot. t.* 1688.

In the sea: parasitic on various algæ. Bantry bay; *Miss Hutchins.* West of Ireland and at Wicklow; *W. H. Harvey.*

4. S. *Cabreræ*, Ag. *Cabrera's Sporochnus.* Frond irregularly dichotomous, linear, narrow, flat; branches here and there

constricted, truncate; fruit "terminal, elliptical, solitary." (*Turn*) *Ag. Syst. p.* 260.—*Fucus Cabreræ. Turn. Hist. t.* 140.

At Youghal, among rejectamenta, very rare; *Miss Ball. Root* a shapeless tuber. *Stems* 6—8 inches high, much branched in an irregularly dichotomous manner, flat, nerveless, except near the base, where there is a faint trace of a central midrib, coriaceo-cartilaginous. *Branches* erect, with acute axillæ, distichous, alternate, narrow below, rather broader upwards, here and there constricted, the apices truncate and often discoloured. *Fructification*, "placed upon the ends of the branches, which then expand into a small flat disk, supporting a single cylindrical tubercle scarcely a line long, of a pale flesh colour, slightly tinged with brown, destitute of any epidermis, and wholly consisting of very thin parallel whitish fibres, of a clavate shape, with a rounded tip, mixed with which lie oblong reddish seeds."—*Turn. Hist. vol.* iii. *p.* 14.—*Miss Ball's* specimens are unfortunately without perfect fruit, though many of the apices present imperfect indications of fructification.

TRIBE V. DICTYOTEÆ.

Plants marine, of an olive-green colour, and membranaceous flexible substance, rarely cartilaginous, and scarcely at all juicy, with a highly reticulated structure. Frond cylindrical or flat, simple or branched, nerveless (except in Haliseris), often divided in a flabelliform manner. Fructification, dark-coloured ovate or pear-shaped seeds, with pellucid cases, which are variously arranged in lines, sori, or covering the whole frond; very rarely enclosed in capsules.—A beautiful family, easily distinguished by the highly reticulated structure. Under the microscope, the frond appears like a delicate network.

11. CHORDA. *Stackh.* Sea Whip-lash.

Frond simple, filiform, cylindrical, with an interrupted cavity. *Root* naked, scutate. *Fruct.:* external continuous masses of pear-shaped *seeds,* fixed by their base. *Grev.* Name; *chorda,* a *cord.*

1. C. *Filum,* Lamour. *Common Sea Whip-lash.* Frond cartilaginous, very long, slimy, cylindrical, internally jointed. *Hook. Br. Fl. v.* ii. *p.* 276. *E. Bot. t.* 2487.

Sea-shores, common. 1—20 or even 30 feet long, according to the depth of water; composed, as Captain Carmichael well expresses it, "of a simple fillet, one or two lines in breadth, spirally twisted into a filiform tube, formed by the cohesion of its edges."

2. C. *lomentaria,* Grev. *Jointed Whip-lash.* Frond short, membranaceous, jointed at irregular intervals, the joints externally much constricted. *Hook. Br. Fl. v.* ii. *p.* 276. *Lyngb.*

Hyd. Dan. t. 18. *Asperococcus castaneus. Carm. in Hook. Br. Fl. v.* ii. *p.* 277.

Sea-shores, not rare. Kingstown, near Dublin, and on the west coast; *W. H. Harvey.—Asperococcus castaneus* proves, as my friend Mrs. Griffiths first pointed out to me, to be the young of this species.

12. ASPEROCOCCUS. *Lamour.* Asperococcus.

Frond simple, tubular, cylindrical or compressed, continuous, membranaceous. *Root* minutely scutate, naked. *Fruct.:* distinct spots of imbedded *seeds*, mixed with erect, club-shaped filaments. *Grev. Hook.*—Name; *asper, rough*, and *κοκκος, a seed.*

1. A. *fistulosus*, Hook. *Fistulose Asperococcus.* Frond cylindrical, tapering at each end, here and there slightly contracted. *Hook. Br. Fl. v.* ii. *p.* 277. *E. Bot. t.* 642. *Grev. Crypt. t.* 290.

Sea-shores, common. 6—12 inches long.

2. A.? *pusillus. Least Asperococcus.* Frond rounded, capillary, spuriously articulated, brown. *Hook. Br. Fl. v.* ii. *p.* 277. *Carm. MSS. cum, Ic.*

On *Chorda Filum.* Coast of Cork, Ballycotton; *Miss Ball.*—⊙. Autumn.—The fronds of this diminutive species are so closely aggregated, as to give to a section of the plant on which they grow, the appearance of a bottle-brush. They are from 1—2 inches long, simple, the thickness of a horse-hair, attenuated at both ends, transversely striated in imitation of joints, and closely beset with pellucid fibres. *Carm. MSS.*

3. A. *Turneri*, Hook. *Mr. Turner's Asperococcus.* Frond oblong, inflated, obtuse, attenuated at the base into a short stipes, thin and delicately membranaceous, here and there contracted. *Hook. Br. Fl. v.* ii. *p.* 277.—*Ulva Turneri. E. Bot. t.* 2570.—*A. bullosus, Grev.*

Rare. Bantry bay; *Miss Hutchins.* Abundantly thrown up on the Murrough, Wicklow; *W. H. Harvey. Miss Hutchins'* specimens are very fine, the fronds being 2—3 inches in diameter.

13. PUNCTARIA. *Grev.* Punctaria.

Frond simple, membranaceous, flat, with a naked scutate root. *Fruct.* scattered over the whole frond in minute distinct spots, composed of roundish prominent *seeds*, intermixed with club-shaped filaments. *Grev.*—Name; *punctum*, a *dot*, from the dotted fructification.

1. P. *plantaginea*, Grev. *Plantain-leaved Punctaria.* Frond

coriaceo-membranaceous, linear-obovate, much attenuated at the base. *Hook. Br. Fl. v.* ii. *p.* 278. *E. Bot. t.* 2136.

Sea-shores. Wicklow and Killiney, near Dublin.

2. P. *latifolia*, Grev. *Broad-leaved Punctaria.* Frond pale-olive, thick, subgelatinous, tender, oblong, or obovate, suddenly tapering at the base. *Hook. Br. Fl. v.* ii. *p.* 278.—*Laminaria debilis. Ag.—Grev. Crypt. t.* 277. *(according to authentic specimens.)*

Rare. Belfast; *Dr. Drummond.* Kilkea, County of Clare; *W. H. Harvey.* This, I greatly fear, is nothing more than a pale variety of the preceding; both are extremely variable in outline, and, among numerous specimens with which Mrs. Griffiths' kindness has furnished me, I find every gradation of form and colour: some having the dark colour and substance of *P. plantaginea* with the outline of *P. latifolia;* while others unite the pale colour and delicate substance of *P. latifolia*, with the narrow outline and tapering base of *P. plantaginea.*—The same lady informs me that she has found both growing together in the same pool; a circumstance which seems to confirm the opinion that they are not distinct. But, however this may be, I feel no hesitation in referring *Laminaria debilis* of authors to this place, having minutely examined Chalmer's original specimens, and having found them to possess a reticulated and truly *dictyoteous* structure; in fact, having ascertained that they do not differ in any important particular from Devonshire specimens of *P. latifolia.*

14. STRIARIA. *Grev.* Striaria.

Frond filiform, tubular, continuous, membranaceous, branched. *Root* naked and scutate. *Fruct.:* groups of roundish *seeds*, forming transverse lines. *Grev.*—Name; from the *striated* appearance, caused by the lines of fructification.

1. S. *attenuata*, Grev. *Attenuated Striaria. Grev. Crypt. Syn. p.* 44. *Hook. Br. Fl. v.* ii. *p.* 279.—*Carmichaelia attenuata. Grev. Crypt. t.* 288.

Very rare. Belfast Lough; *Dr. Drummond.* 3—12 inches high, much branched, a line in diameter; branches long, irregular, attenuated at base and apex, elegantly marked by the transverse lines of seeds. A beautiful plant, first discovered by Captain Carmichael at Appin, in Scotland, and lately found by Mrs. Griffiths at Torquay, Devonshire; it may, therefore, be expected in intermediate stations.

15. DICTYOSIPHON. *Grev.* Dictyosiphon.

Frond filiform, tubular, continuous, branched. *Root* minutely scutate, naked. *Fruct.:* ovate scattered *seeds*, lying beneath the epidermis. *Grev.*—Name; *δικτυον*, a *net*, and *σιφων*, a *tube*, from the tubular reticulated frond.

1. D. *fœniculaceus*, Grev. *Fennel-leaved Dictyosiphon.*—

Hook. Br. Fl. v. ii. *p.* 279. *Turn. Hist. t.* 234. *E. Bot. Suppl. Grev. Alg. Brit. t.* 8.

On most of our coasts, both the eastern and western shores. 1—10 feet long or more, capillary, excessively branched and entangled. *Fruct.* very rare, and hitherto only described by Dr. Greville.

16. DICTYOTA. *Lamour.* Dictyota.

Frond flat, highly reticulated, membranaceous, dichotomous or irregularly cleft (palmato-flabelliform in *D. atomaria*). *Root* a mass of woolly filaments. *Fruct.* composed of scattered or variously aggregated, somewhat prominent *seeds*, on both surfaces of the frond. *Grev.*—Name: *δικτυον*, a *net*, the fronds, as in all this tribe, appearing reticulated when magnified.

1. D. *dichotoma*, Lamour. *Dichotomous Dictyota.* Frond olive-green, regularly dichotomous linear; segments becoming gradually narrower toward the extremities; seeds scattered or irregularly clustered. *Hook. Br. Fl. v.* ii. *p.* 280. *E. Bot. t.* 774.—*β. intricata, Grev.;* frond very narrow, much branched, twisted and entangled.

In the sea, on rocky shores, both varieties common.—β. greatly resembles the exotic *D. furcellata*, but differs in the segments becoming gradually attenuated; whereas, in that species, the frond is of one breadth throughout.

2. D. *atomaria*, Grev. *Sprinkled Dictyota.* Frond olive-brown, palmato-flabelliform or cuneate, irregularly cleft and laciniated; seeds forming waved transverse lines, with intermediate scattered ones. *Hook. Br. Fl. v.* ii. *p.* 280. *Grev. Alg. Brit. p.* 58.—*D. zonata* and *D. ciliata, Lamour.*—*Zonaria atomaria, Ag. Sp. Alg. v.* i. *p.* 128.—*Ulva atomaria, Woodw. E. Bot. t.* 419.

Marine rocks, Coast of Cork, near Ballycotton; *Miss Ball.*

17. CUTLERIA. *Grev.* Cutleria.

Frond plano-compressed, cartilagineo-membranaceous, subflabelliform, irregularly cleft. *Root* a mass of woolly filaments. *Fruct.:* minute tufts of *capsules*, scattered on both sides of the frond, the capsules pedicellate, containing several distinct *granules.*—*Grev.* Named by Dr. Greville in honour of my valued friend Miss Cutler of Sidmouth, a most acute and zealous algologist, and the discoverer in England of *Grateloupia filicina.*

1. C. *multifida*, Grev. *Multifid Cutleria.*—*Grev. Alg. Brit. p.* 60. *t.* 10.—*Ulva multifida, E. Bot. t.* 1913. *Hook. Br. Fl. v.* ii. *p.* 281.

Very rare. Bantry bay; *Miss Hutchins*. Ballycotton; *Miss Ball*. A single specimen found at Kilkee, County of Clare; *W. H. Harvey*. *Frond* 2—12 inches high, broadly flabelliform, cut, often nearly to the base, into many cuneate segments, which are again many times divided; the apices furnished with delicate confervoid fibres. *Miss Cutler*, who has favoured me with many beautiful specimens, remarks, in a letter, that, when fresh, "it is a stiff, rather thick, slightly curled plant, somewhat transparent, of a pale amber colour; so extremely brittle that the larger plants may be said to break with their own weight; on exposure to the air it becomes flaccid and turns brownish—in fresh water it changes to a greenish hue. As it is not very gelatinous it dries quickly under pressure, and leaves its impression, in a *permanent* brown colour, on the rags used to assist in drying it; a property common to many Algæ. Of the fructification I have nothing to add to the remarks of Dr. Greville, except that on one or two specimens I observe the fructification is placed in wavy transverse lines, as in *D. atomaria*. I find the delicate conferva-like fibres not only fringe the edge in clusters, but clothe the fronds of the young plants generally. May not these, by their elasticity, form a protection to so brittle a plant?" *Miss Cutler in litt.*

18. PADINA. *Adans.* Padina.

Frond flat, highly reticulated, subcoriaceous, flabelliform, mostly undivided, marked with concentric lines. *Root* a mass of woolly filaments. *Fruct.*: ovate, blackish *seeds*, fixed by their base, bursting through the epidermis in compact, concentric lines (rarely spots) mostly on one surface of the frond. *Grev.* —Name of uncertain origin. *P. Pavonia*, one of the most remarkable of British Algæ, has not yet been found on our shores; but it may be expected to occur on the southern coasts of Cork or Waterford.

1. P. *parvula*, Grev. *Small Padina.* Frond resupinate, extensively creeping, suborbicular, lobed, membranaceous; lobes rounded, scarcely marked with concentric lines. *Grev. Crypt. Fl. t.* 360. *Hook. Br. Fl. v.* ii. *p.* 282.

Rocks in the sea, rare. Miltown Malbay; *W. H. Harvey*. *Fronds* olivaceous, depressed, creeping over the rock, to which they are attached by white fibres from the under surface. I have compared my specimens with English ones communicated by Miss Cutler, and find them to agree exactly.

2. P. (? ?) *deusta*, Grev. *Dark-brown Padina.* Fronds coriaceous, thick, brown, opaque, reniform or orbicular, with concentric lines, not reticulated, attached by the whole under surface. *Zonaria deusta, Ag. Sp. Alg. p.* 132. *Fucus deusta, Fl. Dan. t.* 420. *P. deusta, Hook. Br. Fl. v.* ii. *p.* 281.

Marine rocks. Miltown Malbay; *W. H. Harvey*. *Fronds* an inch or two in diameter, closely adhering to the rock on which they grow, of a rich brown colour and thick fleshy cellular substance, *not reticulated*. I have no idea to what tribe of Algæ this most properly belongs; but that it has no relation to Padina, or even to Dictyota, is obvious to any one who will take the trouble of examining it with the aid of a microscope. Its resemblance to Padina is merely superficial.

19. HALISERIS. *Tozzetti.* Haliseris.

Frond flat, linear, membranaceous, with a midrib. *Root* a mass of woolly filaments. *Fruct.:* ovate *seeds*, forming distinct *sori* or groups (mostly arranged in longitudinal lines). *Grev.*—Name; αλς, αλις, *the sea*, and σερις, *endive; sea endive.*

1. H. *polypodioides*, Ag. *Polypodium-like Haliseris.* Frond dichotomous (often proliferous), obtuse, entire at the margin. *Hook. Br. Fl. v.* ii. *p.* 283.—*Fucus membranaceus, Stackh. Ner. t.* 6. *E. Bot. t.* 1758.

Rocks in the sea, covered with sand, very rare. Quilty Strand, at extreme low-water mark, Miltown Malbay; *W. H. Harvey.* 6—12 inches high, delicately membranaceous, and turning in an oblique direction from the margin to the midrib. When fresh it has an extremely powerful disagreeable smell.

TRIBE VI. ECTOCARPEÆ.

Plants marine, of an olive-green or (rarely) full-green colour, filamentous, often capillary or crinoid, articulated, cartilaginous or flaccid, not very juicy, nor adhering strongly to paper. Frond much branched, mostly of a uniform structure throughout; articulations of the filaments mostly very short, (but very variable in the same filament, and not to be depended on in forming specific characters). Root minute, scutate. Fructification double, mostly monœcious (both kinds produced on the same individuals), 1. *Capsules containing dark-coloured seeds;* 2. *granules imbedded in the distended, often vesicated apices of the ramuli.*

20. CLADOSTEPHUS. *Ag.* Cladostephus.

Filaments cartilaginous, inarticulate, whorled with short articulated ramuli, olivaceous. *Fruit* double: 1. ovate *capsules*, furnished with a terminal pore, containing dark seeds; 2. *granules* imbedded in the apices of the *ramuli.*—Name; κλαδος, a *branch*, and στεφος, a *crown;* from the whorled ramuli.

1. C. *verticillatus*, Lyngb. *Whorled-Milfoil Cladostephus.* Ramuli regularly whorled, subdistant, mostly forked; branches slender. *Harv. in Hook. Br. Fl. v.* ii. *p.* 322. *Conf. vertic. E. Bot. t.* 1718. and *t.* 2427. *f.* 2.

On the western coasts, not rare. 3—9 inches high, slender, the whorls of ramuli rather distant, by which character it is chiefly distinguished from the following.

2. C. *spongiosus*, Ag. *Sponge-like Cladostephus.* Ramuli irregularly whorled, imbricated, mostly simple; branches thick and clumsy. *Harv. in Hook. Br. Fl. v.* ii. *p.* 323. *Conf. spong. E. Bot. t.* 2427. *f.* 1.

Marine rocks, common. 3—4 inches high, dark olive brown.

21. Sphacelaria. *Lyngb.* Sphacelaria.

Filaments jointed, branches distichous, pinnated, rarely dichotomous, rigid. *Fruct.* double, on the same individual: 1. ovato-sphærical *capsules*, furnished with a terminal pore; 2. a granular *mass*, inclosed in the hyaline vesicated apices of the branches.—Name; Σφακελος, *gangrene;* from the *withered distended* apices.

1. S. *filicina*, Ag. *Ferny Sphacelaria.* Stuppose at the base; branches lanceolate, decomposite, pinnate; pinnæ alternate; pinnules fasciculato-multifid. *Br. Fl. v.* ii. *p.* 323. *Ag. Sp. Alg. v.* 2. *p.* 22. *S. hypnoides, Grev. Crypt. Fl. t.* 348.

In the sea, very rare. Bangor, County of Down; *Mr. W. Thompson.*

2. S. *scoparia*, Lyngb. *Broom-like Sphacelaria.* Dark brown, coarse, lower part shaggy with woolly fibres; upper branches once or twice pinnate; pinnæ erecto-patent, subulate, alternate, the lower ones slightly divided. *Harv. in Hook. Br. Fl. v.* ii. *p.* 323. *Dillw. t.* 52. *S. disticha, Lyngb. Harv. in Hook. Br. Fl. l. c. E. Bot. t.* 1552.

Rare on our shores. Killiney and Wicklow; *W. H. Harvey.* The winter and summer states of this species are so very unlike each other, that I formerly mistook them for distinct species, and published them as such in Dr. Hooker's British Flora. Since that work was printed, I have received numerous specimens, in every state of transition, from my kind friends *Mrs. Griffiths* and *Miss Cutler;* and I am now fully convinced that the *S. disticha* of the British Flora is only the autumnal or winter state of *S. scoparia.*

3. S. *plumosa*, Lyngb. *Feathery Sphacelaria.* Filaments elongated, naked at base, branched, inarticulate, pinnate; pinnæ opposite, very close, simple, pectinated, elongated, erecto-patent. *Harv. in Hook. Br. Fl. v.* ii. *p.* 324. *Conf. pinnata. E. Bot. t.* 2330. *(left hand fig.)*

Rocky coasts, rare. Wicklow; *W. H. Harvey.* 2—4 inches high, the branches resembling delicate feathers: colour greenish-olive.

4. S. *cirrhosa*, Ag. *Small pinnate Sphacelaria.* Filaments short, naked at the base, densely tufted, articulated throughout, pinnate; pinnæ alternate or irregular. *Harv. in Hook. Br. Fl. v.* ii. *p.* 324. *Conf. pinnata. Dillw. t.* 86. *E. Bot. t.* 2330. *(right hand fig.)*

On various marine Algæ, very common. Tufts half an inch to an inch or two in height, olive-brown.

5. S. *radicans*, Harv. *Creeping Sphacelaria.* Filaments decumbent, sending out fibrous radicles in the lower part, with a few irregular, simple, straight, naked branches. *Harv. in Hook. Br. Fl. v.* ii. *p.* 324. *Conf. radicans, Dillw. Lyn. p.* 57. *t. C. E. Bot. t.* 2138.

Sand covered rocks. Bantry bay; *Miss Hutchins.* A very doubtful species.

6. S. *olivacea*, Ag. *Olive Sphacelaria.* Filaments short, erect, tufted, sparingly branched; branches alternate, simple. *Harv. in Hook. Br. Fl. v.* ii. *p.* 235.—*Conf. olivacea. E. Bot. t.* 2172.

On rocks, and the larger Algæ. Dunmore; *Miss A. Taylor.*

7. S. *velutina*, Grev. *Velvet-like Sphacelaria.* "Olivaceous, spreading, velvet-like; filaments subsimple, erect, very short, bearing capsules at the base, joints about equal in length and breadth." *Grev. Crypt. Fl. t.* 350. *Harv. in Hook. Br. Fl. v.* ii. *p.* 325.

Parasitical on *Himanthalia lorea. Filaments* about a line in height, forming velvetty patches. It has but a very feeble claim to be considered a member of the present genus, and would, in my opinion, range much better with *Myrionema.*

22. ECTOCARPUS. *Lyngb.* Ectocarpus.

Filaments capillary, olivaceous or brown, flaccid, without longitudinal striæ. *Fruit*, sphærical or siliquæform *capsules* and *granules* in swollen ramuli.—Name; *εκτος, καρπος, external fruit;* equally applicable to many other genera.

1. E. *littoralis*, Lyngb. *Common Ectocarpus.* Filaments densely tufted, excessively branched; ultimate ramuli somewhat patent, alternate or fascicled; capsules sphærical, sessile. *Harv. in Hook. Br. Fl. v.* ii. *p.* 325.—*Conf. litt. E. Bot. t.* 2290.

On the larger Algæ, very common. *Tufts* 1—6 inches long, brown, coarse.

2. E. *siliculosus*, Lyngb. *Pod-fruited Ectocarpus.* Filaments flaccid and slender, tufted; ultimate ramuli erect, subulate, alternate or fascicled, capsules siliquæform, lanceolate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 325.—*Conf. silic. E. Bot. t.* 2319.

Sea-shores, on Algæ, corallines, &c. 2—12 inches high, pale yellow, distinguished by the siliquæform fruit.

3. E. *tomentosus*, Lyngb. *Woolly Ectocarpus.* Filaments flexuose, very slender, woven into a dense sponge-like branch-

ing frond; siliquæ oblong, obtuse. *Harv. in Hook. Br. Fl. v.* ii. p. 326.

Sea-shores, not rare on the east coast. Bantry bay; *Miss Hutchins.* Ardmore; *Miss Ball.* Habit something like that of *Codium tomentosum.*

4. E. *granulosus*, Ag. *Granular Ectocarpus.* Filaments excessively branched, slender, upper branches short, patent, opposite; apices elongated and hyaline; capsules solitary, elliptical. *Harv. in Hook. Br. Fl. v.* ii. *p.* 326. *E. Bot. t.* 2351.

On other Algæ. Bantry bay; *Miss Hutchins.* Mangan's bay; *Miss Ball.* 3—10 inches long, delicate: *capsules* large, dark, seated in the ultimate branches.

5. E. *sphærophorus*, Carm. *Round-fruited Ectocarpus.* Filaments slender, tufted; upper branches patent, opposite or in fours; capsules globose, opposite to each other or to a branch. *Harv. in Hook. Br. Fl. v.* ii. *p.* 326.—*E. brachiatus, Ag. (not Conf. brachiata of E. Bot.)*

On other Algæ. Bantry bay; *Miss Hutchins.* The Bantry bay station for *E. mertensii*, given in Eng. Bot. and Hooker's Br. Flora, must be cancelled. I have examined *Miss Hutchins*' specimens so named, and find them to belong to this, and the preceding species. The true *E. mertensii*, which is an extremely rare and little known plant, is regularly distichous and beautifully bipinnate; the pinnæ scarcely one-fourth the thickness of the branch in diameter.

23. MYRIOTRICHIA. *Harv.* Myriotrichia.

Primary filament olivaceous, flaccid (simple), beset with setiform, obtuse, quadrifarious *ramuli;* their apices bearing crinoid, hyaline, dichotomous, long articulated filaments. *Fruct.:* ovate capsules, including a mass of olivaceous seeds. —Name from μυριος, *a thousand*, and θριξ, a *hair;* from the innumerable hyaline, hair-like filaments which spring from the apices of the ramuli.

1. M. *clavæformis*, Harv. *Club-shaped Myriotrichia. Harv. in Hook. Journ. of Bot. vol.* 1. *p.* 300. *t.* 138. *Wyatt. Alg. Danm. No.* 131.

Parasitical on *Chorda lomentaria.* At Cable Island, near Youghal; *Miss Ball. Fronds* half an inch high, tufted, slender, flaccid, subgelatinous, olivaceous, lineari-clavate, (in outline,) surrounded with hyaline filaments. *Frond* articulated throughout, the articulations of the *stem* and *ramuli* very short; of the hyaline filaments many times longer than their breadth. This curious little plant was originally discovered at Torquay, in Devonshire, by *Mrs. Griffiths*, and has recently been added to our Flora by *Miss Ball*, an acute and zealous algologist, and the discoverer in this country of *Sporochnus Cabreræ*, and several other rare plants.

TRIBE VII. CHORDARIEÆ.

Plants marine, of an olive-green or olive-brown colour, becoming darker on exposure, of a cartilaginous or gelatinous substance, and celluloso-filamentous structure. Frond filiform (except in Corynephora, which is globose and tuberculose,) much branched, cylindrical; the centre or axis, composed either of longitudinal, aggregated, colourless, jointed filaments, or of a solid cellular substance; the periphery, consisting of coloured, simple or branched, somewhat clavate toruloso-articulated filaments, disposed in a verticillate manner round the axis. Fructification (so far as ascertained), ovate or pyriform olive-coloured seeds (capsules?) enveloped in pellucid cases, imbedded among the filaments of the periphery, to whose ramuli they are laterally attached.—To *Chordaria*, a genus which Dr. Greville places by itself in this family, I have ventured to add another (*Trichocladia*), which is very nearly allied to it in structure and fructification, but which has till now been confounded with *Mesogloia;* and *Corynephora*, a plant perhaps of uncertain affinities, but which approaches in structure more nearly to *Trichocladia* than to any other. The family thus constituted is allied on the one hand to the *Dictyoteæ*, and on the other to the *Gloiocladeæ*. From the latter it chiefly differs in colour, and in the structure of the fructification.

24. CHORDARIA. *Ag.* Chordaria.

Frond filiform, much branched. *Axis* cartilaginous, firmly gelatinous, cellular. *Periphery* composed of simple, clavate, torulose, verticillate filaments. *Fruct.:* "obovate brown *seeds* (*capsules?*), mixed with the filaments of the periphery." *Carm.*—Name: *Chorda*, a *cord*.

1. C. *flagelliformis*, Ag. *Common Chordaria.* Frond filiform, equal throughout; branches alternate, exceedingly long and mostly simple. *Hook. Br. Fl. v.* ii. *p.* 175. *E. Bot. t.* 1222.

Sea-coast, on rocks and stones, common. 3—12 inches long, slender, dark olive-brown. Captain Carmichael observes, that, "in young plants, there is little or no vestige of the filaments" of the periphery, and that "their development appears to keep pace with that of the sporidia." I am sorry that my own observations are directly at variance with this account, for I have found these filaments as perfectly formed in plants not two inches high as in those of full growth.

25. TRICHOCLADIA. *Harv.* Trichocladia.

Frond filiform, much branched. *Axis* loosely gelatinous, composed of articulated, hyaline fibres. *Periphery* consisting of branched, coloured, torulose, verticillate filaments. *Fruct.* ovate or elliptical, olivaceous *seeds (capsules?)* attached to the ramuli of the periphery.—Name; ϑριξ, a *hair*, and κλαδος, a *branch;* the branches being composed of hair-like filaments.

1. T. *vermicularis*, Harv. *Worm-like Trichocladia.* Frond clumsy; branches irregularly pinnate, thick, vermicular, lineari-fusiform; ramuli copious, elongated, flexuose, resembling the branches. *Mesogloia vermicularis, Ag. Harv. in Hook. Br. Fl. v.* ii. *p.* 387. *Riv. verm, E. Bot. t.* 1818.

Sea-shores, not uncommon. 1—2 feet high. *Branches* clumsy, attenuated toward each end. *Capsules* ovate, abundantly produced.

2. T. *Griffithsiana*, Harv. *Mrs. Griffiths' Trichocladia.* Frond slender, equal throughout; branches alternate or irregular, filiform, long, simple, nearly bare of ramuli. *Mesogloia Griffithsiana, Grev. Harv. in Hook. Br. Fl. v.* ii. *p.* 387.

Sea-shores, rare. Bantry bay; *Miss Hutchins.* 8—16 inches high of a pale rather olive-green, becoming greener in fresh water. *Branches* long, subsimple, covered with long colourless byssoid fibres, similar to those found in *Chordaria flagelliformis*, a plant which this species strongly resembles in habit. *Capsules* pyriform.

3. T. *virescens*, Harv. *Greenish villous Trichocladia.* Frond filiform, gelatinous; branches long, erecto-patent, slender, villous; ramuli numerous, patent, short, flexuose, obtuse. *Mesogloia virescens, Carm. Harv. in Hook. Br. Fl. v.* ii. *p.* 387. *Berk. Gl. Br. Alg. p.* 44. *t.* 17. *f.* 2. *(also M. affinis, Berk. and M. gracilis, Carm.—Berk. Alg. t.* 16. *f.* 2. *and t.* 17. *f.* 1.*)*

Sea-shores. Bantry bay; *Miss Hutchins.* I have examined the *M. gracilis* of Captain Carmichael, and do not consider it specifically distinct from the present; and though I have not seen specimens of Mr. Berkeley's *M. affinis*, yet, judging from the figure and description of that author, I can consider it but as the young of this species.

26. CORYNEPHORA. *Ag.* Corynephora.

Frond globose or lobed, carnoso-coriaceous, hollow (not filled with gelatine), composed of articulated dichotomous *filaments*, fasciculated at the apices, and issuing from a central point. *Fruct.:* oval *capsules*, seated in the terminal fasciculi.—Name; κορυνη, a *club*, and φορεω, to *bear;* the apices of the filaments, which constitute the periphery, are *clavate.*

1. C. *marina*, Ag. *Marine Corynephora. Ag. Lyst. Alg. p.* 24. *Harv. in Hook. Br. Fl. v.* ii. *p.* 390. *Grev. Crypt. t.* 25. *(imperfect.)*

On rocks in the sea, very common. *Frond* carnose, forming many hollow lobed tubers, and spreading over a large space, olive-brown. In young plants the lobes are filled with wide hyaline dichotomous fibres, originating from a centre point, which are analogous to the filaments that constitute the *axis* of *Trichocladia*. The axis of this genus must, therefore, be considered as *punctiform*, and this, indeed, forms the only really structural difference between the two genera.

DIV. II. RHODOSPERMEÆ.

Plants marine (except one or two species of *Trentepohlia*), foliaceous, cylindrical or filamentous, of a rose-red, purple, or red-brown colour. *Fructification* in many genera double; *primary*, contained in capsules, receptacles, or imbedded in the frond; *secondary* (when present), granules forming sori, or placed in distinct receptacles.

TRIBE VIII. GLOIOCLADEÆ.

Plants marine, of a rose-red or purple colour, giving out a red juice on immersion in fresh water, of a gelatinous, lubricous substance, and filamentous, rarely cellular structure. Frond filiform, branched, cylindrical, solid or tubular; the periphery (except in Chætospora, in which genus, no parts, except the ultimate ramuli, are composed of filaments,) consisting of coloured, branched, verticillate fibres. Fructification: clusters or globules of red seeds, imbedded among the filaments of the periphery, to which they are attached.—In the British Flora, I used the name *Gloiocladeæ* in a wide sense, applying it to all the Tribes of Algæ, whose fronds are invested with a definite gelatine. I now wish to restrict it to a tribe, which is very conveniently placed at the commencement of this division, seeing it stands almost intermediate in affinities between the *Chordarieæ* and *Gastrocarpeæ*, agreeing with the former in the formation of the frond, and with the latter in colour and in the structure of the fruit.

27. MESOGLOIA. *Ag.* Mesogloia.

Frond filiform, solid; the axis or central part gelatinous, formed of longitudinal, hyaline, jointed fibres; the *periphery* composed of radiating, coloured, branched, articulated filaments. *Fruct.:* globules of red *seeds*, imbedded in the filaments of the periphery, to which they are attached.—Name; μεσος, the *middle*, and γλοιος, *viscid*, from the gelatinous axis.

1. M. *multifida*, Ag. *Dichotomous Mesogloia.* Frond dichotomous, slightly branched, dull purple, elastic; the axils rounded. *Harv. in Hook. Br. Fl. v.* ii. *p.* 385. *Berk. Alg. t.* 16. *f.* 1.

On shells and stones near low-water mark, frequent. *Frond* 3—6 inches long, often sub-simple, or once or twice dichotomous, 1—2 lines in diameter, very elastic. *Axis* much denser than in the following, not clearly filamentous; but rather, as Captain Carmichael expresses it, "a medullary cord."

2. M. *Hudsoni*, Ag. *Hudson's Mesogloia.* Frond much branched, filiform, pale-reddish; branches mostly opposite, once or twice pinnate; ramuli numerous, irregular, obtuse. *Harv. in Hook. Br. Fl. v.* ii. *p.* 386. *Ulva rubens, Huds. Fl. Angl. p.* 571.

On rocks and Algæ in the sea. Bantry bay; *Miss Hutchins.* Kilkee, County of Clare, and Killiney; *W. H. Harvey.* 4—8 inches long, excessively branched, slender, filiform, pale-red. Notwithstanding that the opinion of my valued friend, *Mr. Walker Arnott*, founded on a specimen from *Sir Thomas Frankland*, is against me, I am unwilling to omit the reference to the *U. rubens* of Hudson, as given above. In defence of this opinion I have, however, no better plea than that Hudson's description—*U. gelatinosa filiformis ramosissima rubescens, ramis sparsis noris entalibres obtusis*"—answers mostly correctly to the present species, and will not apply to any other.

3. M. *purpurea*, Harv. *Purple Mesogloia.* Frond attenuated at the base; branches distichous, linear-fusiform, elongated, simple, nearly bare of ramuli. *Hook. Br. Fl. v.* ii. *p.* 386.

Ireland's Eye; *Mr. R. Ball.* 1—2 feet high, robust, purple-red, staining fresh water pink. *Stem* subsimple, irregularly branched. *Branches* subalternate, distichous, long, simple, patent, constricted at the base, attenuated to a fine point.

4. M. *coccinea*, Ag. *Moniliform Rose-red Mesogloia.* Frond much branched, rose-red; branches moniliform, irregularly dichotomous, attenuated; ramuli numerous, crowded round the apex, subattenuate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 386. *Riv. verticillata. E. Bot. t.* 2466.

Sea-shores, extremely rare. Bantry bay; *Miss Hutchins. Frond* 2—6 inches high, fine rose-red, very gelatinous and delicate. The *branches* and *ramuli* are moniliform in consequence of the whorls of filaments forming the periphery being sub-distant.

28. GLOIOSIPHONIA. *Carm.* Gloiosiphonia.

Frond cylindrical, filiform, tubular, somewhat gelatinous; the periphery composed of radiating, coloured, branched, articulated filaments. *Fruct.: globules* of red seeds, imbedded in the filaments of the periphery, to which they are attached.—Name; γλοιος, *viscid*, and σιφων, a *tube*; from the gelatinous tubed frond.—This genus, founded on the *Fucus capillaris* of Turner, was originally proposed by the late Captain Carmichael, in his unpublished "*Algæ Appinenses*," and has been adopted by *Mr. Berkeley.* Except in the tubular frond, it does not differ from *Mesogloia.*

1. G. *capillaris*, Carm. *Banded Gloiosiphonia. Berk. Alg. t.* 17. *f.* 3. *Fucus cap. Turn. t.* 31. *E. Bot. t.* 2191. *Mesogloia? capillaris, Ag. Harv. in Hook. Br. Fl. v.* ii. *p.* 386.

Very rare. Bantry bay; *Miss Hutchins. Fronds* 3—6 inches long, much branched, fine rose-red, often a line in diameter. *Branches* mostly opposite, attenuated at the base. *Ramuli* very numerous, short, slender, flexuose, subulate. *Globules* of fructification large.

29. Chætospora. *Ag.* Chætospora.

Frond cylindrical, filiform, solid, subgelatinous, rose-red; the centre (*axis*) laxly cellular; the *periphery* membranaceous. *Ramuli* setaceous, fusiform, composed of articulated, branched, radiating filaments, and containing a mass of minute *red seeds.*—Name; χαιτη, a *bristle*, and σπορα, a *seed* or *sporule;* the filaments of the ramuli being supposed by some to be connected with the fructification. Though the structure of this curious plant (except as regards the ramuli) is perhaps more that of the following tribe (*Gastrocarpeæ*) than of the *Gloiocladeæ;* yet in habit it so completely agrees with *Mesogloia* and *Gloiosiphonia*, that I do not wish to place them in different families. The *periphery*, too, consists of exceedingly minute longitudinal fibres, firmly agglutinated into a membrane. May not *Chætospora*, therefore, be regarded as a *Mesogloia*, wanting the verticillate filaments?

1. C. *Wigghii*, Ag. *Mr. Wiggs' Chætospora. Hook. Br. Fl. v.* ii. *p.* 306. *Fucus Wigghii. Turn. Hist. t.* 102. *E. Bot. t.* 1165.

Very rare. Bantry bay; *Miss Hutchins.* Kilkee, County of Clare, extremely rare; *W. H. Harvey. Frond* 6—12 inches long, much branched, fine rose-red. *Ramuli* 1—2 lines long, fusiform, containing a dark mass of granules.

Tribe IX. GASTROCARPEÆ.

Plants marine, of a pink, purple, or dull red colour, of a carnose, gelatinoso-cartilaginous or membranaceous substance; "the structure consisting of a cellular external coat or membrane, and a pellucid, gelatinous, internal mass, mostly traversed by colourless jointed filaments arising from the outward membrane." Frond cylindrical, compressed, or flat, destitute of midrib or veins. Fructification: globules or clusters of minute red seeds imbedded in the internal substance of the frond.

30. Catenella. *Grev.* Catenella.

Frond filiform, somewhat compressed, creeping, throwing up numerous branches, contracted, as if jointed, in a moniliform manner, composed internally of branched filaments radiating from the centre. *Fruct.* unknown. *Grev.*—Name; *catenella*, a little chain, which its fronds resemble.—A genus of a very questionable character, which I adopt entirely in deference to Dr. Greville, though by no means convinced of the propriety of so doing.

1. C. *Opuntia*, Grev. *Opuntia-like Catenella. Grev. Alg. p.* 166. *t.* 17. *Hook. Br. Fl. v.* ii. *p.* 309. *Fucus Opuntia. Turn. t.* 107. *Rivularia Opuntia. E. Bot. t.* 1868.

Marine rocks, near high-water mark. *Fronds* tufted from half an inch to an inch and half in height, dull purple.

31. DUMONTIA. *Lamour.* Dumontia.

Frond cylindrical, simple or branched, membranaceous, tubular, gelatinous within, of a red or purplish-red colour. *Fruct.:* globules of seeds, attached to the inner surface of the membrane of the frond. *Grev.*—Named in honour of M. Dumont, a French Naturalist.

1. D. *filiformis*, Grev. *Filiform Dumontia.* Frond tender, membranaceous, cylindrical, pinnated with long simple branches, which are attenuated at each extremity. *Hook. Br. Fl. v.* ii. *p.* 308. *U. purpurascens, E. Bot. t.* 641.—*β. crispata;* frond compressed, waved, curled, or twisted. *Grev. Crypt. t.* 240.

Rocks and stones in the sea, common. 3—12 inches long, dull purple.

32. HALYMENIA. *Ag.* Halymenia.

Frond cylindrical, compressed or flat, gelatinoso-membranaceous, of a pinky red colour, subdichotomously branched. *Fruct.:* globules of *seeds*, imbedded in the central substance of the frond.—Name; ἁλς, αλις, the *sea*, and ὑμην, a *membrane; sea-membrane.*

1. H. *ligulata*, Ag. *Ligulate Halymenia.* Frond gelatinoso-membranaceous, compressed or flat, irregularly dichotomous or palmate, the segments attenuated, often proliferous at the margin. *Hook. Br. Fl. v.* ii. *p.* 308. *Ulva ligulata. E. Bot. t.* 429. *U. rubra, Huds.*—*β. latifolia;* frond very broad, palmate, dark-red, quite flat, membranaceous.

Sea-shores, rare. Bantry bay; *Miss Hutchins.*—*β.* at Miltown Malbay and Kilkee, County of Clare; *W. H. Harvey.* Very variable in size, in the breadth and thickness of the frond, and in the ramification. Sometimes it is nearly filiform and cylindrical. *β.* is a truly remarkable variety, which, at one time, I felt disposed to regard as a distinct species; but after comparing many varieties from the South of England, kindly furnished by my valued friends Mrs. Griffiths and

Miss Cutler, with my Irish specimens, I have feared that the distinguishing characters are too variable to be depended on. The frond in my largest specimen is about 18 inches long, and 4—5 inches wide in the broadest part; cloven into three principal segments, with a palmate outline. When fresh, it had a soft feel like fine kid leather; and was not thicker than the membrane of *Rhodomenia reniformis*, perfectly flat, and with a darker colour than in the more common variety.

2. H. *furcellata*, Ag. *Forked Halymenia.* Frond tender, gelatinoso-membranaceous, cylindrical, uniformly dichotomous, the segments obtuse. *Hook. Br. Fl. v.* ii. *p.* 308. *Ulva furcellata. E. Bot. t.* 1881.

Very rare on our coasts; Bantry Bay; *Miss Hutchins.* Quilty Strand, Miltown, Malbay; *W. H. Harvey.* Distinguished from the preceding by the regular dichotomous frond. *Miss Hutchins's* specimens are remarkable for possessing a more or less distinct midrib: in one specimen this is so fully developed, that, were there not intermediate states from the strongest to the most imperfectly ribbed, I might have mistaken it for a distinct species. The branches (particularly in these Bantry specimens) are frequently constricted, so as in some instances to form regular septa at the strictures.

33. IRIDÆA. *Bory.* Iridæa.

Frond flat, expanded, carnose, more or less of a purple-red colour. *Fruct.:* globules of roundish seeds, imbedded between the two coats of the frond, or contained in little pedicillated processes.—Named from the *iridescent* hues of some of the species when recent.

1. I. *edulis*, Bory. *Esculent Iridæa.* Frond simple, obovate or cuneiform, rounded at the apex, attenuated at the base into a short stipes. *Hook. Br. Fl. v.* ii. *p.* 380. *F. edulis. E. Bot. t.* 1307.

Sea-shores, abundant. 2—18 inches long; dark purple.

TRIBE X. SPONGIOCARPEÆ.

Marine plants, of a dull dark-purple colour; of a cartilaginous or carnose substance, and fibrous structure. Frond cylindrical, dichotomous; the central part composed of very slender, closely packed, longitudinal fibres; the circumference formed of radiating dichotomous filaments. Root scutate. Fructification double (?); 1. naked spongy warts, composed of radiating filaments, among which are imbedded globules of red seeds; 2. minute granules immersed in the substance of the slightly swollen upper ramuli.

34. POLYIDES. *Ag.* Polyides.

Frond cylindrical, dichotomous; *root* scutate. *Fruct.:* naked spongy *warts*, composed of radiating filaments, among which are imbedded clusters of wedge-shaped *seeds*. *Grev.*—Name; πολυ, *many*, and ιδεα, *form* or *appearance;* not at all applicable. It is to be regretted that Dr. Greville's excellent name, *Spongiocarpus*, not having the claim of priority, cannot be adopted.

1. P. *rotundus*, Grev. *Cylindrical Polyides*. *Grev. Alg. t.* 11. *Hook. Br. Fl. v.* ii. *p.* 284.—*P. lumbricalis*. *Ag.*—*Fucus rotundus*, *E. Bot. t.* 1738.

Sea coasts, not rare. *Fronds* 4—6 inches high, dark purple, several times dichotomous; the axils obtuse.

TRIBE XI. FURCELLARIEÆ.

Marine plants, of a dull dark purplish colour, of a carnose substance and cellular structure. Frond cylindrical, dichotomous; the central part closely cellular; the circumference composed of radiating simple filaments. Root creeping. Fructification: terminal pod-like indehiscent receptacles, within which is imbedded, beneath the outer coat, a stratum of dark red-brown seeds.—Very similar to the preceding family in habit, but decidedly differing in structure and in the fructification.

35. FURCELLARIA. *Lamour.* Furcellaria.

Frond cartilaginous, cylindrical, dichotomous. *Root* creeping. *Fruct.:* terminal, elongated, pod-like receptacles, containing a stratum of dark, oblong, pear-shaped *seeds* in the circumference. *Grev.*—Name; *furcula* or *furcilla*, a *little fork;* from the forked frond.

1. F. *fastigiata*, Lamour. *Fastigiate Furcellaria*. *Grev. Alg. t.* 11. *Hook. Br. Fl. v.* ii. *p.* 283.—*Fucus lumbricalis*.—*Turn. Hist. t.* 6. *E. Bot. t.* 894.

Rocky shores, common. *Frond* 6—8 inches long, purplish-brown, dichotomous; axils acute.

TRIBE XII. FLORIDEÆ.

Plants marine, of a purplish-red or fine rose colour, of a coriaceous, cartilaginous or membranaceous substance and cel-

lular texture; cellules often highly developed. Frond flat, foliaceous, compressed or cylindrical, occasionally filiform or filamentous, inarticulate. Fructification mostly double, and produced on distinct individuals of the same species. 1. *Capsules, or tubercles, containing a mass of ovate or pear-shaped red seeds:* 2. *granules, scattered or collected into little groups, and situated either in the substance of the frond or in distinct processes.*

36. DELESSERIA. *Lamour.* Delesseria.

Frond rose-red, flat, membranaceous, with a percurrent midrib. *Fruct.* of two kinds. *Capsules* containing a globular mass of *seeds* and ternate *granules,* forming definite sori in the frond or in distinct foliaceous leaflets. *Grev.*—This beautiful genus, distinguished from every other in the tribe by its percurrent midrib, is inscribed to M. Benjamin Delessert, a distinguished French naturalist and patron of Botany.

1. D. *sanguinea,* Lamour. *Oak-leaved Delesseria.* Stem cylindrical, branched, bearing oblong, waved, transversely veined, entire leaves; midrib percurrent, strong. *Hook. Br. Fl. v.* ii. *p.* 285.—*F. sang. E. Bot. t.* 1041.

Sea-shores, frequent; particularly large at Larne; *Dr. Drummond. Stem* elongated, bearing leaves 6—8 inches long and 1—5 broad, delicate, waved and plaited, the margin quite entire. *Fructification* is only borne on the battered fronds in winter and spring. Miss Ball finds a curious variety at Youghal, in which small leaflets spring from the midrib of the larger ones, something in the manner of *Del. Hypoglossum.*

2. D. *sinuosa,* Lamour. *Sinuous-leaved Delesseria.* Stem elongated, branched, beset with oblong or obovate, dentato-sinuate or pinnatifid, transversely ribbed leaves. *Hook. Br. Fl. v.* ii. *p.* 285.—*Fucus sinuosus. E. Bot. t.* 822.

On the larger Fuci, very common; very fine at Larne; *Dr. Drummond. Fronds* 6—8 inches long or more, of a darker and duller colour than the preceding; the transverse veins much stronger.

3. D. *alata,* Lamour. *Winged Delesseria.* Stem excessively branched, somewhat dichotomous, winged with membrane, without distinct leaves; branches linear, attenuate; margin entire. *Hook. Br. Fl. v.* ii. *p.* 285. *E. Bot. t.* 1387.—*β. angustissima,* Turn. Frond extremely narrow, without any trace of lateral membrane. *Turn. t.* 160.

On the larger Algæ, very abundant. 4—8 inches high; deep red, excessively branched, very variable in the relative breadth of the membrane. Dr. Turner's var. β. is a very curious state of this plant, and has not yet (that I am aware) been found in Ireland.

4. D. *Hypoglossum,* Ag. *Proliferous Delesseria.* Frond (originally) linear-lanceolate, excessively branched ina proliferous manner; innovations lanceolate, attenuated and acute,

leaflike, rising from the midribs of the older leaves. *Hook. Br. Fl. v.* ii. *p.* 288. *E. Bot. t.* 1396.

On rocks and the larger Algæ, not rare; very fine at Bantry Bay; *Miss Hutchins.* And at Larne; *Dr. Drummond.* A beautiful species, distinguished by the lanceolate outline of its proliferous leaves; in other respects it approaches very near to the following.

5. D. *ruscifolia*, Lamour. *Ruscus-leaved Delesseria.* Frond (originally) linear, oblong, much branched in a proliferous manner; innovations or leaves oblong or obovate, obtuse, not tapered at base, rising from the midribs of the older fronds. *Hook. Br. Fl. v.* ii. *p.* 286. *Fucus ruscifolius, E. Bot. t.* 1397.

Rocks in the sea, rather rare. Bantry bay; *Miss Hutchins.* Miltown Malbay, Kilkee and Wicklow, &c.; *W. H. Harvey.* Differs from the last in being of rather a darker colour and less delicate substance, with short obtuse leaves; but this latter character is far from invariable.

37. NITOPHYLLUM. *Grev.* Nitophyllum.

Frond plane, delicately membranaceous, expanded, rose coloured, reticulated, wholly without veins, or with slight vague ones toward the base. *Fructification:* hemisphærical *capsules* imbedded in the substance of the frond, and ternate *granules* forming distinct scattered spots.—Name; a Latin and Greek hybrid, from *nitor*, to *shine*, and *φυλλον*, a *leaf.*

1. N. *ocellatum*, Grev. *Ocellated Nitophyllum.* Frond with rather a roundish outline, much branched in a dichotomous manner; segments linear, obtuse; spots of granules "in the segments." *Grev. Hook. Br. Fl. v.* ii. *p.* 287. *D. ocell. Grev. Crypt. t.* 347.

Rare. Bantry bay; *Miss Hutchins.* 4—6 inches long, generally cut into numerous linear segments. Though this species appears, at first sight, very distinct, if we regard only *typical* specimens (such as are figured in *Dr. Greville's* plate), yet I have seen so many varieties, bordering more or less on *N. punctatum*, that, I greatly fear, this must only be considered a curious variety of that species.

2. N. *punctatum*, Grev. *Spotted Nitophyllum.* Frond very thin and delicate, destitute of nervures, cleft into two or three principal segments, which are more or less cleft into numerous, narrow forked laciniæ; spots of granules scattered over the whole frond, large. *Hook. Br. Fl. v.* ii. *p.* 287. *Fucus punctatus. E. Bot. t.* 1575.—*Turn. Hist. t.* 71.

On various Algæ. Larne (*very fine*); *Dr. Drummond.* Bantry bay; *Miss Hutchins.* Miltown Malbay, and Kilkee; *W. H. Harvey.* 6—8 inches long, segments broad, cleft nearly to the base; spots of granules large and conspicuous.

3. N. *ulvoideum*, Hook. *Ulva-like Nitophyllum.* Frond thickish but tender, veinless, roundish but very irregular in

figure, somewhat cuneate at the base, variously cleft into oblong more or less broad segments, rounded at the extremity; spots of granules small, scattered over nearly the whole frond. *Grev. Hook. Br. Fl. v.* ii. *p.* 287. *N. Hilliæ. Grev. Crypt. t.* 351.—*F. ulvoides, Turn. t.* 80.—*E. Bot. t.* 2134.

Very rare. Bantry bay; *Miss Hutchins.* Distinguished by its broad slightly divided rounded fronds, thicker substance, and by the minute dot-like spots of granules. The "*Miltown Malbay*" station, given on my authority in the *British Flora,* is incorrect, and belongs to *N. Bonnemaisonii.*

4. N. *Bonnemaisonii,* Grev. *Bonnemaison's Nitophyllum.* Frond shortly stipitate, flabellate or palmate, variously cleft into numerous wedge-shaped segments, furnished near the base with irregular vanishing nerves; spots of granules scattered over the frond. *Hook. Br. Fl. v.* ii. *p.* 287.—*D. Bonnemaisonii. Grev. Crypt. t.* 322. *(excl. fig.* 2 *and* 3.*)*

Shores, rather rare. Bantry bay; *Miss Hutchins.* Larne; very fine; *Dr. Drummond.* Youghal; *Miss Ball.* Miltown Malbay and Kilkee; *W. H. Harvey.* Distinguished from *N. punctatum* by its elipitate palmato-flabellate frond; and from the following, by its different substance, and the position of the granular fructification.

5. N. *Gmelini,* Grev. *Marginal-fruited Nitophyllum.* Frond shortly stipitate, more or less flabellate, variously cleft into broadly wedge-shaped segments, waved, curled, and rather crisp, marked near the base with vague vanishing nerves; spots of granules linear, marginal. *Hook. Br. Fl. v.* ii. *p.* 288. *E. Bot. Suppl.*

In the sea. Bantry bay; *Miss Hutchins.* Larne; *Dr. Drummond.* Kilkee; *W. H. Harvey. Fronds* 2—4 inches long, roundish, when fresh curled and crisped, with a rather disagreeable smell and dark pink colour; when dry, delicately membranaceous.

6. N. *laceratum,* Grev. *Torn Nitophyllum.* Frond sessile, much divided in a dichotomous manner, veiny, segments mostly linear, variously cleft, waved at the margin; spots of granules oblong, either marginal or borne in distinct foliaceous marginal processes. *Hook. Br. Fl. v.* ii. *p.* 288.—*F. laceratus. Turn. Hist. t.* 68. *E. Bot. t.* 1067.

Common on rocks and Algæ. *Dr. Drummond's* specimens, gathered at Larne, near Belfast, are the largest and finest I have seen. The *veins* in this species are often very highly developed.

38. RHODOMENIA. *Grev.* Rhodomenia.

Frond plane, membranaceous, fine pink or red, quite veinless, sessile, or with a short stem, which expands immediately into the frond. *Fruct.:* 1. hemisphærical, scattered *capsules;* 2. minute, ternate *granules,* spreading over the whole or some part of the frond, (not in distinct spots or sori.) *Grev.*

—Name; *ροδος, red,* and ὑμην, a *membrane.* This genus is distinguished from *Nitophyllum,* by the denser substance of the frond, and the general distribution of its granules through the whole, or irregular portions of the membrane.

1. R. *bifida,* Grev. *Bifid Rhodomenia.* Frond membranaceous, tender, thin, dichotomously divided from the base, segments broadly linear; apices subcuneate, bifid, obtuse; capsules chiefly confined to the margin. *Hook. Br. Fl. v.* ii. *p.* 289. *E. Bot. t.* 773.

On rocks, &c.; rare. Belfast; *Mr. Templeton.* Bantry bay; *Miss Hutchins.* Miltown Malbay, Kilkee and Wicklow; *W. H. Harvey.* 1—3 inches high, thin and delicate, fine rose-red. Mr. Turner's variety β. (which I have not found in Ireland) differs so much from the usual form, that it might easily be mistaken for a different species. It is of a darker colour, with exceedingly narrow segments, which are much lacerated and entangled.

2. R. *laciniata,* Grev. *Laciniated Rhodomenia.* Frond thickish, subcartilaginous, more or less palmate or flabelliform, cleft into numerous broad, wedge-shaped segments, which are again divided in a subdichotomous manner; apices obtuse; margin in fructification fringed with minute laciniæ, in which the capsules are imbedded. *Hook. Br. Fl. v.* ii. *p.* 289. *Turn. Hist. t.* 69. *E. Bot. t.* 1068.

Sea-shores, common. I have received superb specimens from Larne, near Belfast, through the kindness of Dr. Drummond. A fine species, 6—10 inches long, of a bright crimson colour.

3. R. *Palmetta,* Grev. *Fern-shaped Rhodomenia.* Stem short, cylindrical, quickly expanding into a roundish flabelliform frond, which is more or less cleft in a dichotomous manner, segments cuneate; axils rounded; apices (according to the state of fructification) either erose or rounded, obtuse; capsules mostly terminal; granules in the expanded apices. *Hook. Br. Fl. v.* ii. *p.* 290.—*F. Palmetta. Turn. t.* 73. *E. Bot. t.* 1120.

On rocks, or (more generally) on the stems of *Laminaria digitata. Fronds* tufted, about 3 inches high, very variable in the length of the stipes; tolerably constant in its other characters. *Substance* cartilaginous. *Colour,* a full rose-red. *Root* accompanied by creeping fibres.

4. R. *ciliata,* Grev. *Ciliated Rhodomenia.* Frond thick, subcartilaginous, rising from a short stipes, lanceolate, irregularly pinnated, with lanceolate or cleft segments, attenuated at base; margin (and often the disk) furnished with simple, subulate ciliæ, which bear the capsules at their extremities; granules in the disk; root fibrous, creeping. *Hook. Br. Fl. v.* ii. *p.* 291.—*Fucus ciliatus. E. Bot. t.* 1069.

On rocky shores, not uncommon. 4—8 inches high, of a thick substance, and full red colour, which becomes much darker in drying.

5. R. *jubata,* Grev. *Cirrhose Rhodomenia.* Frond thickish, flaccid, subcartilaginous, linear-lanceolate, much attenuate,

vaguely pinnated with segments of the same form; the margin (and often the disk) beset with subulate, often cirrhose ciliæ, in which both capsules and granules are produced; root fibrous, creeping. *Hook. Br. Fl. v.* ii. *p.* 291.—*Sp. jubatus. Grev. Crypt. t.* 359.

On rocky shores, in gravelly or shelly places. Bantry bay; *Miss Hutchins*. West of Clare, common; *W. H. Harvey*. The capsules, which are very rare, I was fortunate enough to gather in abundance at Miltown Malbay, in the summer of 1831. *Fronds* 4—8 inches high, dull pale red; ciliæ often 5—6 inches in length.

6. R. *palmata*, Grev. *Dulse or Dillisk.* Frond coriaceous or submembranaceous, broadly wedge-shaped, much and irregularly cleft, segments subdichotomously divided; margin entire (often winged with proliferous leaflets); granules distributed over the whole frond in cloud-like spots. *Hook. Br. Fl. v.* ii. *p.* 291.—*Fucus palmatus. E. Bot. t.* 1306.

Rocky shores, very abundant. *Fronds* 2—18 inches long, of a livid purple colour. Well known to hawkers and schoolboys under the name of *Dulse* or *Dillisk;* and eagerly collected by the poor on the coast as an agreeable esculent. It is similarly used in most of the northern countries of Europe.

7. R. *sobolifera*, Grev. *Proliferous Rhodomenia.* Frond membranaceous, shortly stipitate; stem filiform, dividing into branches, which expand into flat, dilated fronds, much deeply and irregularly cleft; the segments linear, wedge-shaped, laciniated at their apex. *Grev.—Hook. Br. Fl. v.* ii. *p.* 292. *Turn. Hist. t.* 45. *E. Bot. t.* 2133.

On *Laminaria digitata* and on rocks. Glenarm; *Dr. Drummond.* 4—6 inches long, cleft into many laciniated, linear, wedge-shaped segments. Very nearly related to *R. palmata*, from some varieties of which I find it sometimes dificult to distinguish it.

8. R. *reniformis*, Hook. *Kidney-shaped Rhodomenia.* Stipes short, cylindrical, simple or branched, suddenly expanding into a carnoso-membranaceous, roundish, subsimple or irregularly cleft (occasionally proliferous at the margin), somewhat lobed frond; capsules and granules scattered. *Hook. Br. Fl. v.* ii. *p.* 292.—*Iridæa reniformis, Bory. Grev. Alg. Brit.—Fucus reniformis. Turn. t.* 113. *E. Bot. t.* 2116.

Sea-shores, rather rare. Bantry bay; *Miss Hutchins.* Miltown Malbay and Kilkee; *W. H. Harvey.* Mouth of the river Bann; *Mr. D. Moore. Fronds* 2—8 inches long, fine red, soft, roundish, occasionally beset at the margin with proliferous lobes of similar form.

39. PLOCAMIUM. *Lamour.* Plocamium.

Frond filiform, compressed, between membranaceous and cartilaginous, fine pink red, much branched, branches distichous, (alternately secund and pectinate.) *Fructification* of two kinds: sphærical sessile capsules, and lateral minute processes, containing oblong *granules*, transversely divided into several parts by pellucid lines. *Grev.* Name; *πλοκαμος, intertwined hair;* from the finely branched fronds. The exotic genus *Thamnophora, Ag. f. Grev.*, closely accords with the present in habit, and merely differs in the structure of the granules of the secondary fructification; a character, in my opinion, by no means sufficient to separate plants otherwise so nearly related.

1. P. *coccineum*, Lyngb. *Scarlet Plocamium. Grev. Alg. t.* 12. *Hook. Br. Fl. v.* ii. *p.* 293.—*Fucus coccineus. Turn. Hist. t.* 59. *E. Bot. t.* 1242.

Sea-shores, very common. *Fronds* 5—6 inches long, much branched, bright rose-colour; *ramuli* regularly alternately secund and pectinate.

40. ODONTHALIA. *Lyngb.* Odonthalia.

Frond plane, between membranaceous and cartilaginous, dark vinous-red, with an imperfect or obsolete midrib, alternately toothed at the margin. *Fruct.* marginal or axillary, or in the teeth; 1. Capsules, containing pear-shaped seeds, fixed by their base; 2. slender processes (*stichidia*), containing ternate *granules*. *Grev.*—Name; *οδους, οδοντος,* a *tooth*, and *θαλασση*, the *sea;* a marine plant, with a *toothed* margin.

1. O. *dentata*, Lyngb. *Toothed Odonthalia.* Frond vaguely branched in an irregularly pinnate manner; branches linear-oblong, narrowed at base, alternately pinnatifid; laciniæ sharply toothed at the truncate extremities; capsules clustered on branched peduncles. *Hook. Br. Fl. v.* ii. *p.* 293.—*Fucus dentatus. E. Bot. t.* 1241.

Confined to our northern shores, where it is very common. *Fronds* 4—6 inches high, very dark.

41. RHODOMELA. *Ag.* Rhodomela.

Frond cylindrical or compressed, filiform, much branched, coriaceo-cartilaginous (the apex sometimes involute.) *Fruct.:* subglobose capsules, containing free pear-shaped seeds, and pod-like receptacles, with imbedded ternate granules. *Grev.* Name; *ροδος, red,* and *μελας, black;* in allusion to the change the species undergo in drying, from red to blackish.

1. R. *Lycopodioides*, Ag. *Club-moss Rhodomela.* Frond elongate, mostly simple, beset with short, closely imbricated, slender, hair-like ramuli, which are generally forked near the apices. *Hook. Br. Fl. v.* ii. *p.* 294.—*Fucus Lycopodioides. Turn. Hist. t.* 10. *E. Bot. t.* 1163.

On our northern shores, rare. Antrim; *Dr. Scott.* Portstewart; *Mr. D. Moore.* 5—8 inches long, simple, shaggy, rope-like.

2. R. *subfusca,* Ag. *Brownish Rhodomela.* Frond filiform, much and irregularly branched; branches subulate, pinnate, and alternate, often clustered. *Hook.—Hook. Br. Fl. v.* ii. *p.* 294. *Turn. Hist. t.* 10. *E. Bot. t.* 1164.

Bantry bay; *Miss Hutchins.* Youghal; *Miss Ball.* 4—8 inches high, much branched. *Branches* attenuate. *Colour* a dull reddish-brown. In the winter the branches are much broken, and quite destitute of the delicate ramuli which clothe them in summer.

3. R. *pinastroides,* Ag. *Pinaster-like Rhodomela.* Frond terete, irregularly branched; branches with numerous secund, spuriously jointed ramuli; apices incurved. *Hook.Br. Fl. v.* ii. *p.* 294.—*Fucus pin. Turn. t.* 11. *E. Bot. t.* 1042.

Sea-shores, not rare. Near Dublin; *Dr. Scott.* Wicklow; *W. H. Harvey.* Distinguished by its secund, spuriously jointed, incurved ramuli.

4. R. *scorpioides,* Ag. *Scorpion's-tail Rhodomela.* Frond cylindrical, slender, attenuated, three or four times pinnated, with horizontal branches, the uppermost involute at the extremity. *Hook. Br. Fl. v.* ii. *p.* 294.—*Fucus amphibius. Turn. t.* 109. *E. Bot. t.* 1428.

On rocks in the sea, salt marshes, &c. At Portstewart, North of Ireland; *Mr. D. Moore. Fronds* 2—3 inches high, much branched in a distichous manner. *Branches* very patent, with involute apices. The *capsules* of this plant are a desideratum.

42. BONNEMAISONIA. *Ag.* Bonnemaisonia.

Frond membranaceous, compressed or plane, filiform, much branched, the branches pectinate with distichous ciliæ. *Fruct.:* sessile or pedicellate capsules, containing a cluster of pyriform (compound?) seeds, fixed by their base. *Grev.*—Named in honour of *M. Bonnemaison,* a French Algologist.

1. B. *arparagoides,* Ag. *Finely-branched Bonnemaisonia.* Frond compressed (or terete), excessively branched, filiform; branches alternate, irregularly pinnated, set with alternate, subulate, distichous ciliæ; capsules pedicellate, opposite the ciliæ. *Hook. Br. Fl. v.* ii. *p.* 295.—*Fucus asparag. Woodw. Turn. t.* 101. *E. Bot. t.* 571.—*β.* frond capillary, terete; ciliæ very long.

Not rare in Ireland. Bantry; *Miss Hutchins.* Near Belfast; *Dr. Drummond.* Miltown Malbay; *Joshua Fennell, Esq.* Kilkee, frequent; *W. H. Harvey:* and var. *β.* at Kingstown, near Dublin, and Wicklow. One of the most beautiful of British Florideæ, of a fine rose red colour, and most delicately branched.

43. LAURENCIA. *Lamour.* Laurencia.

Frond cylindrical, filiform, between gelatinous and cartilaginous, mostly yellowish or purplish-red. *Fruct.* of two kinds: 1. ovate capsules with a terminal pore, containing a cluster of stalked, pear-shaped seeds, fixed by their base; 2. ternate *granules*, imbedded in the ramuli. *Grev.*—Named in compliment to a French Naturalist, M. de la Laurencie.

1. L. *pinnatifida*, Lamour. *Pinnatifid Laurencia.* Frond compressed, cartilaginous, bi-tripinnatifid, divisions alternate, ultimate ones obtuse, simple or lobed. *Hook. Br. Fl. v.* ii. *p.* 296.—*Fucus pinnatif. Turn. Hist. t.* 20. *E. Bot. t.* 1202.—*β. Osmunda;* frond flat, simple; ramuli short and multifid. *Turn. l. c.*—*γ. angusta;* frond roundish; branches multifid; ramuli terete, thickened upwards. *Turn. l. c.*

Rocky shores, very common. 1—10 inches high, dull purple.

2. L. *obtusa*, Lamour. *Obtuse Laurencia.* Frond cylindrical, filiform, 2—3 pinnate; pinnæ mostly opposite; ramuli short, patent, obtuse. *Hook. Br. Fl. v.* ii. *p.* 296.—*F. obtusa, Turn. t.* 21. *E. Bot. t.* 1201.

On the larger Algæ, rare. Ireland's Eye; *Mr. R. Ball.*

3. L. *dasyphylla*, Grev. *Thick-leaved Laurencia.* Frond filiform, terete, much branched, vaguely pinnated; branches long, subsimple, set with irregular, scattered or subfasciculate, obtuse ramuli, much attenuated at the base. *Hook. Br. Fl. v.* ii. *p.* 296.—*Fucus dasyphyllus. Turn. t.* 22. *E. Bot. t.* 847.

On sand-covered rocks and the larger Algæ, not rare. Bantry bay; *Miss Hutchins.* Coast of Clare; *W. H. Harvey. Colour* a pale pinky-brown.

4. L. *tenuissima*, Grev. *Slender Laurencia.* Frond filiform, much branched in a pinnated manner; ultimate branchlets short, setaceous and attenuated at the base. *Grev. Alg. Brit. t.* 113.—*Gigartina tenuiss. Lamour.*—*Chondria tenuiss. Ag. Sp. Alg. v.* i. *p.* 353. *Fucus tenuiss., Good. et Woodw. in Linn. Trans. v.* iii. *p.* 215. *t.* 19. *Turn. Syn. Fuc. p.* 35. *Hist. Fuc. t.* 100. *E. Bot. t.* 1882.

On rocks and on the larger Algæ. On the Coast of Waterford, near Ballycotton; *Miss Ball.* ⊙. Summer.—6—8 inches high. Readily distinguished by its very slender, uniform, ultimate ramuli or pinnules.

44. CHYLOCLADIA. *Grev.* Chylocladia.

Frond cylindrical, filiform (often constricted as if jointed), between gelatinous and cartilaginous, of a pinky-red colour.

Fruct. of two kinds: 1. sphærical, ovate or conical capsules, with wedge-shaped or angular seeds; 2. imbedded, ternate granules.—Name; κυλος, *juice*, and κλαδος, a *branch*; from the succulent nature of the frond.

* *Frond without constrictions.*

1. C. *clavellosa*, Hook. *Clavellate Chylocladia.* Frond much branched in an irregular or somewhat pinnate manner; branches and ramuli alternate, distichous; ultimate ramuli often crowded, lanceolato-fusiform, attenuated at base. *Hook. Br. Fl. v.* ii. *p.* 297.—*Fucus clavell. Turn. t.* 30. *E. Bot. t.* 1283.

Sea-shores, rather rare. Bantry; *Miss Hutchins.* Kilkee; *W. H. Harvey.* Black rocks, Portrush; *Mr. D. Moore.* Very variable in ramification, and best distinguished from our native species by its unconstricted frond and slender ramuli.

* * *Ramuli elliptical, rarely somewhat elongated and constricted.*

2. C. *ovalis*, Hook. *Oval-leaved Chylocladia.* Frond filiform, irregularly dichotomous, naked below, above beset with elliptical, simple (rarely elongated and constricted) ramuli tapering at the base; capsules sphærical, with a pellucid border. *Hook. Br. Fl. v.* ii. *p.* 297.—*Fucus ovalis. Turn. t.* 81. *E. Bot. t.* 711.

On rocks in the sea, not rare. 4—6 inches high, slightly branched, beset in the upper part with elliptical, rarely elongated *ramuli*, resembling the leaves of a *Sedum.*

* * * *Frond constricted as if jointed.*

3. C. *kaliformis*, Hook. *Salsola-like Chylocladia.* Frond subgelatinous, tubular, distantly constricted as if jointed, much and somewhat pinnatedly branched; branches whorled at the constrictions with catenulate ramuli; capsules sphærical, with a pellucid border. *Hook. Br. Fl. v.* ii. *p.* 298.—*Fucus kaliformis. Turn. t.* 29. *E. Bot. t.* 640.

Sea-shores; particularly fine in Bantry bay; *Miss Hutchins.*

4. C. *parvula*, Hook. *Least Chylocladia.* Frond subgelatinous, slender, irregularly branched in a subdichotomous, straggling manner; constrictions (throughout the frond) nearly equal in length and breadth; "capsules ovate, cantaining a sphærical mass of wedge-shaped seeds." (*Grev.*)—*Hook. Br. Fl. v.* ii. *p.* 298.—*Chondria parvula. Grev. Crypt. t.* 346.

Parasitic on the larger Algæ. Bantry; *Miss Hutchins.* Miltown Malbay; *W. H. Harvey.* Black rocks, Portrush; *Mr. D. Moore.*

Surely very distinct from the preceding. I have received specimens from the Coast of North America, near New York, precisely agreeing with our Irish plant in every character.

5. C. *articulata*, Hook. *Articulated Chylocladia.* Frond tubular, membranaceo-gelatinous, strongly constricted throughout as if jointed, much branched in a fasciculato-dichotomous manner; branches patent; joints somewhat fusiform, much attenuated at base; "capsules urceolate." (*Grev.*) *Hook. Br. Fl. v.* ii. *p.* 298.—*Fucus articulatus. Turn. t.* 106. *E. Bot. t.* 1574.

On rocks and the larger Algæ, very common. *Fronds* 4—12 inches in length, dark-red, excessively branched in a dichotomous manner, and catenulato-constricted throughout.

45. GIGARTINA. *Lamour.* Gigartina.

Frond more or less cartilaginous, filiform, cylindrical or compressed, irregularly branched, of a dull-red colour. *Fruct.*: *capsules* containing a mass of minute roundish seeds, and (in many of the species, perhaps in all,) roundish or oblong simple granules, imbedded in the fronds of distinct plants. *Grev. Hook.*—Name, from γιγαρτον, a *grape stone*, which the seeds somewhat resemble, as seen through the capsule. (!) *Hook.*

1. G. *purpurascens*, Lamour. *Purplish Gigartina.* Frond cylindrical, filiform, bushy, excessively and very irregularly branched; ramuli setaceous, acute, scattered, containing immersed sphærical tubercles. *Hook. Br. Fl. v.* ii. *p.* 299.—*Fucus purpur. Turn. t.* 9. *E. Bot. t.* 1243.—*Gracilaria purp.*, *Grev. Alg. p.* 122.

Rocky shores, very common.

2. G. *confervoides*, Lamour. *Conferva-like Gigartina.* Frond cartilaginous, cylindrical, filiform, irregularly (often very slightly) branched; branches long, subsimple; ramuli scattered, attenuated at each end; capsules external, roundish, scattered. *Hook. Br. Fl. v.* ii. *p.* 299.—*Fucus conf. Turn. t.* 84. *E. Bot. t.* 1668.—*Gracilaria conf. Grev.*

Sea-shores, not rare. Bantry; *Miss Hutchins.* Miltown Malbay, and near Dublin; *W. H. Harvey.* Black rocks, Portrush; *Mr. D. Moore.*

3. G. *erecta. Small upright Gigartina.* Frond cylindrical, dichotomous, erect; branches subsimple; capsules globose; granules in terminal pod-like ramuli. *Hook. Br. Fl. v.* ii. *p.* 300. —*Gracilaria erecta. Grev. Alg. Brit. p.* 124. *t.* 14. *Sphærococcus? erectus, Grev. Crypt. Fl. t.* 357.

Sand-covered rocks. Bangor, County of Down; *W. Thompson, Esq.* ♃. February, March. It is slender, erect, rigid, 2—4 inches high, and bears, besides the true capsules, lanceolate pod-like receptacles, containing oblong and scattered granules imbedded in the circumference.

4. G. *acicularis*, Lamour. *Acicular Gigartina.* Frond cartilaginous, terete, filiform, irregularly branched, subdichotomous; branches divaricate; ramuli few, scattered, very patent, subulate; capsules large, sphærical, scattered. *Hook. Br. Fl. v.* ii. *p.* 300.—*Fucus acic. Turn. t.* 126. *E. Bot. t.* 2190.

Very rare. Belfast; *Mr. Templeton.*

5. G. *Griffithsiæ*, Grev. *Mrs. Griffiths' Gigartina.* Frond cartilaginous, filiform, dichotomous, subsimple below, much branched above; branches fastigiate; axils patent; fructification oblong, warts composed of moniliform filaments, and surrounding the stem. *Hook. Br. Fl. v. ii. p.* 301.—*Fucus Griffithsiæ. Turn. t.* 37. *E. Bot. t.* 1926.

Rather rare. Bantry; *Miss Hutchins.* Balbriggan; *Dr. Scott.* Dark-red, rigid, entangled, 2—4 inches high.

6. G. *plicata*, Lamour. *Entangled Gigartina.* Frond horny, cylindrical, filiform, very irregularly branched, entangled, wiry; branches subdichotomous; the axillæ obtuse; ramuli often secund; "fructification oblong, irregular; warts composed of obscurely articulated filaments." *(Grev.) Hook. Br. Fl. v.* ii. *p.* 301.—*Fucus plicatus. Turn. t.* 180. *E. Bot. t.* 1089.

Rocky shores, common. 4—8 inches high, remarkably wiry and entangled.

46. CHONDRUS. *Stackh.* Chondrus.

Frond cartilaginous, dilating upwards into flat, nerveless, dichotomously divided segments, of a purplish or reddish colour. *Fruct.:* subsphærical capsules, in the substance of the frond (rarely supported on little stalks), containing a mass of minute free *seeds. (Grev.)*—Name; *χονδρος, cartilage;* in allusion to the substance of the frond.

1. C. *mammillosus*, Grev. *Mammillated Chondrus.* Frond thick, cartilaginous, irregularly dichotomous, proliferous, channelled, segments oblong-cuneiform, bifid; capsules borne on short peduncles scattered over the disk. *Hook. Br. Fl. v.* ii. *p.* 302.—*Fucus mammill. Turn. Hist. t.* 218. *E. Bot. t.* 1054.

Rocky shores, very common.

2. C. *crispus*, Lyngb. *Curled Chondrus.* Frond thickish, cartilaginous, dichotomous, flat or curled, quite plane (without channel); segments very variable in breadth, subcuneate; capsules hæmispherical, innate in the disk, concave at one side. *Hook. Br. Fl. v.* ii. *p.* 302.—*F. crispus, Turn. Hist. t.* 216 and 217. *E. Bot. t.* 2285.

Rocky shores, common. Very variable in size, shape, and colour, (often of a full green); yet the accustomed eye will find little difficulty in recognising it under all its varieties. On our western shores it is collected in large quantities by poor women and children, and sold under the name of *Blanc-mange-weed*, (or, as they pronounce it, *Bullamonge.*) At one time it sold in Dublin at two shillings per pound, but latterly the price has greatly fallen away. It may now be bought, washed and dried, on the west of the County of Clare, at from one shilling to one shilling and six pence per *stone*, of sixteen pounds.

3. C. *Norvegicus*, Lyngb. *Norway Chondrus.* Frond cartilagineo-membranaceous, dichotomous, plane; axils patent; segments nearly linear; the apices obtuse; capsules sphærical, sessile on the disk. *Grev. Alg. Brit. Lyngb. Dan. p.* 16.—*Fucus Norv. Turn. Hist. t.* 41. *E. Bot. t.* 1080.

Rocky shores, rare. Bantry; *Miss Hutchins.* Youghal; *Miss Ball.* Miltown Malbay; *W. H. Harvey. Fronds* 2—3 inches high, purplish-red, thinner than those of *C. crispus.* This species is omitted by mistake in Dr. Hooker's British Flora.

4. C. *membranifolius*, Grev. *Membranous-leaved Chondrus.* Stipes cylindrical, filiform, branched; the branches expanding into subcuneate, membranaceo-cartilaginous, two-lobed or dichotomous segments; capsules ovate, shortly pedunculated, arising from the stipes. *Hook. Br. Fl. v.* ii. *p.* 302.—*Fucus memb. Turn. Hist. t.* 74. *E. Bot. t.* 1965.

Rocky shores, not uncommon. Youghal; *Miss Ball.*

5. C. *Brodiæi*, Grev. *Mr. Brodie's Chondrus.* Stipes cylindrical, branched; the branches expanding into oblong, membranaceo-cartilaginous, simple or forked, flat segments; capsules sphærical, sessile upon the apices of the segments. *Grev. Alg. Brit. p.* 133.—*Sphærococcus Brodiæi, Lamour.*—*Fucus Brodiæi, Turn. Hist. Fuc. t.* 72. *E. Bot. t.* 1966.

Found only among rejectamenta on our northern shores. Mouth of the river Bann, County of Derry; *Mr. D. Moore.* Larne, County of Antrim; *Dr. Drummond.* Strangford Lough, County of Down; *Mr. W. Thompson.*

47. PHYLLOPHORA. *Grev.* Phyllophora.

Frond cartilaginous or membranaceous, of a purple rose-red colour, plane, proliferous from the disk, furnished with a more or less imperfect or obscure midrib. *Fruct.:* 1. *Capsules*, containing a mass of minute, roundish, free seeds; 2. *Sori* of simple *granules*, in little foliaceous processes. *Grev.*—Name; φυλλον, a *leaf*, and φορεω, *to bear;* the frond being proliferous.

1. P. *rubens*, Grev. *Red Phyllophora.* Stipes very short, expanding into a sublinear, obscurely ribbed frond, which is repeatedly branched in a proliferous manner; innovations re-

sembling the primary frond; capsules sessile, wrinkled. *Hook. Br. Fl. v.* ii. *p.* 303.—*Fucus rubens*, *Linn. Turn. Hist. t.* 12. *E. Bot. t.* 1053.

Rocky shores, not uncommon. Belfast; *Dr. Drummond.* West of Ireland, very common, where it reaches a large size. *Fronds* 2—8 inches long, of a dull full red colour.

48. SPHÆROCOCCUS. *Stackh.* Sphærococcus.

Frond cartilaginous, compressed, two-edged, linear, distichously branched. *Fruct.:* mucronate capsules, containing a mass of ovate, shortly pedicellate, red seeds. *Grev.*—Name; *σφαιρα*, a *sphere* or *globe*, and *κοκκος*, *fruit;* the capsules are globose.

1. S. *coronopifolius*, Ag. *Swine's-cress leaved Sphærococcus.* Frond cartilaginous, much branched in a distichous and alternate manner, compressed and two-edged below, nearly flat upwards; the branches acute at the apex; capsules sphærical, mucronate in little stalks fringing the smaller branches. *Grev. Hook. Br. Fl. v.* ii. *p.* 304.—*Fucus coron. Turn. Hist. t.* 122. *E. Bot. t.* 1478.

Sea-shores, not rare. Bantry; *Miss Hutchins.* Belfast; *Mr. Templeton* and *Dr. Drummond.* Miltown Malbay; *W. H. Harvey.* 4—8 inches long, bright red, becoming darker in drying.

49. GELIDIUM. *Lamour.* Gelidium.

Frond between cartilaginous and horny, compressed, linear, more or less regularly pinnated. *Fruct.:* 1. *Capsules*, imbedded in the substance of the ramuli, containing a mass of minute roundish *seeds;* 2. ternate or otherwise compound *granules* in the ramuli, on distinct individuals. *Grev.*—Name, in allusion to the gelatinous nature of some species when macerated.

1. G. *corneum*, Lamour. *Horny Gelidium.* Frond between cartilaginous and horny, nearly flat; distichously branched; branches linear, attenuated at each end, pinnate and bipinnate; pinnules mostly opposite, patent, obtuse, bearing within their apices elliptical capsules. *Grev. Hook.*—*Hook. Br. Fl. v.* ii. *p.* 305.—*Fucus corneus, Turn. Hist. t.* 257. *E. Bot. t.* 1970.

Rocky coasts, everywhere. A most variable plant, of which fifteen distinct varieties are enumerated as natives of our shores. The most remarkable of these is the var. *latifolium* of Dr. Greville, which is not uncommon at Miltown Malbay. In this the main *stem* is very broad, (1—2 lines,) quite flat, and more or less bipinnate; the ultimate *pinnulæ* very short; *colour* a bright rose-red.

50. PTILOTA. *Ag.* Ptilota.

Frond compressed or flat, pectinato-pinnate, of a red colour, between membranaceous and cartilaginous. *Fruct.:* minute, aggregated *capsules*, surrounded by an involucre. *Grev.*—Name; πτιλωτος, *pinnated;* from the delicately pinnated fronds.

1. P. *plumosa*, Ag. *Feathered Ptilota.* Frond compressed, filiform, much branched; the branches repeatedly pectinato-pinnate; pinnæ and pinnulæ exactly opposite; the latter minute, subulate, and bearing the clustered capsules. *Hook. Br. Fl. v.* ii. *p.* 307.—*Fucus plumosus. Turn. Hist. t.* 60. *E. Bot. t.* 1308.—*β. capillaris;* frond very narrow, flaccid; ramuli jointed. *Turn. l. c.*

Rocky shores. *α.* on the stalks of the larger Algæ. *β.* on the faces of perpendicular rocks. 6—18 inches long, many times pinnated, of a full red or brownish colour, (in *β.*)

TRIBE XIII. CERAMIEÆ.

Plants marine (except some species of Trentepohlia), of a red, purple or reddish-brown, rarely brown colour, staining fresh water with more or less of a red hue, of a cartilaginous or membranaceous substance and cellular texture. Frond filamentous, cylindrical or compressed, articulate. Fructification double: 1. *Capsules, containing a mass of seeds;* 2. *granules, contained in proper receptacles or in distorted ramuli.*

51. POLYSIPHONIA. *Grev.* Polysiphonia.

Frond filamentous, partially or generally articulate; the articulations longitudinally striate, with internal parallel tubes. *Fruit* double: 1. ovate capsules, furnished with a terminal pore, and containing pyriform seeds; 2. *granules*, immersed in swollen ramuli.—Name; πολος, *many*, and σιφων, a *tube;* from the structure of the frond.—The species of this genus are numerous, and very difficult of determination; and I freely confess, that I by no means fully understand all our native ones. Many new ones will, doubtless, be discovered on our shores by future observers, (for our rich coasts have been but very imperfectly explored); and *some*, which I even possess in my Herbarium, I have feared to introduce, until I can have better opportunities of tracing them in their places of growth.

A. *Main filaments inarticulate.*

1. P. *fruticulosa*, Grev. *Shrubby Polysiphonia.* Stems diffuse, branched from the base; branches divaricating, pinnato-dichotomous, much divided, inarticulate, set in the lower part with short, horizontal, multifid ramuli; in the upper more or less distinctly pinnate, with larger, similarly divided branchlets; axils rounded; articulations of the ramuli shorter than broad; dissepiments opaque; veins anastomosing. *Hutchinsia Wulfenii, Ag.' Sp. Alg. v.* ii. *p.* 95.—*Fucus frutic. Turn. Hist. t.* 227. *E. Bot. t.* 1686. *P. fruticulosa. Harv. in Hook. Br. Fl. v.* ii. *p.* 327. *(in part.)*

Bantry bay; *Miss Hutchins.* Black rocks, Portrush; *Mr. D. Moore.* In the *British Flora* I confounded the two following under this species, and the "*Miltown Malbay*" station, given in that work, belongs to *P. thuyoides.* The true *P. fruticulosa* is readily distinguished by its *diffuse* growth, different ramification, and by the *horizontal multifid ramuli* which clothe the stems.

2. P. *thuyoides*, Harv. MSS. *Arbor-Vitæ Polysiphonia.* Stems tufted, rising from creeping filaments, erect, terete; below simple, and set with short spine-like ramuli; above, much and fasciculately branched; branches crowded round the apices, very erect, bipinnate; pinnæ pinnato-multifid; axils rounded; articulations of the ramuli shorter than broad; dissepiments opaque; veins anastomosing. *P. fruticulosa, Harv. in Hook. Br. Fl. l. c. (in part.)*

Rocky shores. Very abundant at Miltown Malbay. Portrush bay; *Mr. D. Moore.* 3—4 inches high, dull brown. *Capsules* very rare. *Granules* and *antheridia* very frequently produced. The habit of this is very different from that of the preceding; indeed, at first sight, it might readily be mistaken for *P. nigrescens*, a plant of a totally different structure. I am not aware that it has been previously described.

3. P. *cristata*, Harv. MSS. *Crested Polysiphonia.* Stem erect, compressed, subsimple below, decomposite above; branches erecto-patent, more or less regularly bipinnate (as is also the stem to the base); lower pinnæ very short, their pinnules simple and broadly subulate; upper longer, with pinnato-multifid pinnules; axils all acute; ramuli, as well as branches, inarticulate, reticulated with veins. *Fucus cristatus.*—γ. *Miss Hutchins in Herb. (not of Turner.)*

Very rare. Bantry bay; *Miss Hutchins.* If specimens, which I possess through the kindness of Dr. Hooker, be correctly named, (which I have no reason to doubt,) this is not the var. γ. of Turner's *Fucus cristatus (Rhodomenia cristata, Grev.)*; and, consequently, not the *Rytiphlæa complanata* of Agardh. Indeed, if the genus *Rytiphlæa* be characterized by a transversely striate frond, this has no claims to admission into it. This species is alluded to in the British Flora, under *P. fruticulosa*, as a beautiful variety of that species, found at *Whitsand* bay by Mr. Walter Arnott.

4. P. *Brodiæi*, Grev. *Brodie's Polysiphonia.* Stems continuous, cartilaginous, alternately branched; branches pinnated with spreading pencillato-multifid, delicate, flaccid ramuli; articulations of the ramuli 3—4 tubed, rather longer than broad; dissepiments hyaline. *Harv. in Hook. Br. Fl. v.* ii. *p.* 328.—*Conf. Brodiæi. Dillw. t.* 107. *E. Bot. t.* 2589.

Rocky shores; common on our western coasts.

5. P. *Lyngbyei*, Harv. *Lyngbye's Polysiphonia.* Filaments thick, cartilaginous, inarticulate, distantly and irregularly branched, more or less furnished with long, slender, irregularly dichotomous ramuli with acute axillæ; articulations of the ramuli 2—4 times longer than broad, bi-tri-striated. *Harv. in Hook. Br. Fl. v.* ii. *p.* 328.—*Hutch. strictoides. Lyngb. Hyd. Dan. t.* 35.

At Rosse's bay, North of Ireland; *Mr. D. Moore.* 6—12 inches high. *Filaments* as thick as those of *P. elongata*, inarticulate, marked with flexuose veins, dull red. *Ramuli* long, bright crimson, few in the winter state, but, as spring advances, abundantly clothing the upper branches, and spreading in broad fascicles. To *P. elongata* this species bears a very strong external resemblance, but the *inarticulate* stems, and the *long-jointed bistriated* ramuli, which are, moreover, not in the least attenuated at the base, will always serve to keep it distinct.

B. *Filaments articulate throughout.*

* *Articulations marked with two striæ.*

6. P. *fibrata*, Harv. *Bearded Polysiphonia.* Filaments elongated, setaceous, gelatinous, bi-striated, flexuose, loosely branched; ramuli dichotomous, fasciculate; axils patent; upper articulations 2—3 times longer than broad; capsules ovate, pedunculate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 329.—*Conf. fibrata. Dillw.*

Rocky shores. Bantry; *Miss Hutchins.* Malbay; *W. H. Harvey.* Portrush, black rocks; *Mr. D. Moore.* 2—10 inches long, very delicate, flaccid and gelatinous, forming loose tufts. *Articulations* very variable in length.

7. P. *stricta*, Grev. *Straight Polysiphonia.* Filaments densely cæspitose, setaceous, flaccid, bistriate, dichotomous; branches and ramuli straight, erect; axils acute; upper articulations 4—5 times longer than broad; capsules ovate, sessile. *Harv. in Hook. Br. Fl. v.* ii. *p.* 329.—*Conf. stricta, Dillw. t.* 40.

Rocky shores. Bantry; *Miss Hutchins.* Black rocks, Portrush; *Mr. D. Moore.* A very confused species, which I regret I have no opportunities at present of clearing up. Many distinct species appear to be confounded under this name, both by authors and herbarists.

8. P. *macrocarpa*, Harv. MSS. *Large-fruited Polysiphonia.*

Filaments rising from a mass of creeping fibres, tufted and interwoven, short, very slender, flexuose, sparingly and irregularly dichotomous, more or less furnished with very patent or recurved simple ramuli; articulations variable in length, bi-striate; capsules urceolate, very large (in proportion to the diameter of the filament), scattered.

On rocks and Algæ in the sea; probably not uncommon. At Portstewart; *Mr. D. Moore*. Miltown Malbay; *W. H. Harvey*. *Tufts* dense, intricate, about an inch in height, composed of very slender, capillary, flexuose filaments, brownish-red. I have long known this species on the western coast, but have hitherto feared to introduce it. It resembles *P. urceolata* or *P. patens* in miniature, but is of a very flaccid substance, and not one-fourth the size of either of those species; and is, moreover, well distinguished by the very large size of the capsule in proportion to the diameter of the filament. Like *P. stricta*, and several exotic species, the stems rise from a mass of interwoven fibres.

9. P. *urceolata*, Grev. *Pitcher-fruited Polysiphonia.* Filaments rigid, cartilaginous, much branched, loosely entangled; branches dichotomous, erecto-patent; middle articulations 4—5 times longer than broad; capsules with a produced contracted neck, shortly pedunculate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 330. —*Conf. urceolata, E. Bot. t.* 2365.

On rocks and the larger Algæ. Closely allied to the following, from which it chiefly differs in its less squarrose ramification.

10. P. *patens*, Grev. *Patent Polysiphonia.* Filaments cartilaginous, sparingly branched, entangled, beset with short, patent, recurved ramuli, bistriate; middle articulations 2—3 times longer than broad; capsules with a short contracted neck, subsessile. *Harv. in Hook. Br. Fl. v.* ii. *p.* 330.—*Conf. patens? Dillw. Hutchinsia urceolata, Lyngb. Hydroph. Dan. t.* 34. *(excellent.)*

On the stems of *Laminaria digitata*, common. *Stems* subsimple, entangled, dull red. *Ramuli* revolute.

* * *Articulations multistriate.*

† *Rigid; striæ* 3, *ramuli spinæform.*

11. P. *parasitica*, Grev. *Parasitic Polysiphonia.* Filaments slender, rigid; branches alternate, distichous, bi-tripinnate; pinnulæ alternate, erect, spinæform; articulations as long as broad, three tubed. *Harv. in Hook. Br. Fl. v.* ii. *p.* 330.—*Conf. parasitica, E. Bot. t.* 1429.

On the larger Algæ and on rocks, not uncommon. Bantry bay; *Miss Hutchins*. Kilkee; and under "the Black Castle," Wicklow, very fine. 1—2 inches high, full red, slender; delicately and beautifully bipinnate.

†† *Rigid; dark-red or brown, striæ numerous.*

12. P. *atro-rubescens*, Grev. *Dark-red Polysiphonia.* Filaments sparingly branched, somewhat rigid; branches very erect, beset with short, subfasciculate or scattered subulate ramuli; articulations variable; lower, twice or thrice, upper once and half as long as broad, multi-striate; capsules ovate, pedunculate or sessile. *Harv. in Hook. Br. Fl. v.* ii. *p.* 331.—*Conf. atro-rubescens, Dillw. t.* 70.—*C. nigra, E. Bot. t.* 2340. *P. Agardhiana, Grev. Crypt. t.* 210. *and Harv. l. c.*—*P. badia, Grev. Harv. l. c.; and P. denudata, Grev. Harv. l. c. p.* 332.

Rocky shores; not uncommon. 2—6 inches high, dark red, densely tufted. With the consent of my friend, Dr. Greville, I gladly refer his *P. Agardhiana* to this species; and I feel no hesitation in adopting a similar course with *P. badia* and *denudata.*

13. P. *violacea*, Grev. *Purple Polysiphonia.* Filaments flaccid, much and fasciculately branched upwards; branches subdichotomous, patent; ramuli scattered, elongate, subsimple; middle articulations 3—4 times, upper twice as long as broad; capsules shortly pedicellate, subovate. *Hook. Br. Fl. v.* ii. *p.* 332.—*Hutchinsia violacea, Ag. Sp. Alg. v.* ii. *p.* 76. *Lyngb. Hydroph. Dan. t.* 356. *(excl. fig. a.)*

Found among rejectamenta on the strand near Ballymacarret, April 10th, 1836; *Dr. Drummond.* Sparingly branched at the base, much and fasciculately branched upwards; *branches* long, patent, subdichotomous, the secondary ones very erect, almost appressed, with roundish axillæ. *Ramuli* elongated, virgate, straight, simple, or with a few ramular processes near the apex, often fibrilose. *Articulations* 5—7 striæ, the basal ones very short, but rapidly elongating. *Colour* a dull red. *Substance* flaccid, adhering to paper.—Doctor Drummond's specimens are from 6—10 inches long, but destitute of fruit, which is described by Dr. Hooker as being shortly pedicellate, ovate or subureceolate, with an elongated but not contracted neck; scattered over the ramuli.

14. P. *nigrescens*, Grev. *Dark Polysiphonia.* Filaments robust, rigid below, much branched and bushy; upper branches somewhat pinnate with distichous, subulate ramuli, which are mostly ramulose toward their apices; lower articulations very short, upper rather longer than broad; capsules ovate, sessile. *Harv. in Hook. Br. Fl. v.* ii. *p.* 332.—*Conf. fucoides, Dillw. t.* 75. *E. Bot. t.* 1743—*Conf. nigrescens, E. Bot. t.* 1717.

Rocky shores, common. A very variable plant, and, perhaps, more than one species is confounded under this name. Mrs. Griffiths has communicated a beautiful *variety (?),* from Larderham, which she is inclined to consider a distinct species; and I gathered a similar plant at the Black Castle, Wicklow. In this all the *branches* are perfectly distichous and remarkably patent, the *stem* is subcompressed, and the whole plant has a decomposito-pinnate character. Future observations may prove it truly distinct.

15. P. *fastigiata*, Grev. *Fastigiate Polysiphonia.* Filaments rigid, setaceous, equal, many times dichotomous, fastigiate; axils patent; articulations shorter than their diameter, multistriate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 333.—*Conf. polymorpha. Dillw. t.* 44. *E. Bot. t.* 1764.

Parasitic on *Fucus nodosus* and *F. vesiculosus*, very common. Dark brown, rigid, forming round bushy tufts.

††† *Stems rigid, cartilaginous; ramuli flaccid, delicate.*

16. P. *elongata*, Grev. *Lobster-horn Polysiphonia.* Stems robust, cartilaginous, irregularly branched, beset, especially toward the apex, with slender, broadly fasciculate ramuli, attenuated at the base; articulations about as long as broad, those of the stem reticulated with veins. *Harv. l. c.*—*Conf. elongata, Dillw. t.* 38. *E. Bot. t.* 2429.

Sea-shores, common. The largest of our native species, with very robust stems. It varies both in the ramification, and in the more or less crowded ramuli (in some varieties they are entirely wanting); yet the student will readily recognise it under all its appearances. The *stems* are of a dull red colour; the *ramuli* are brilliant crimson.

17. P. *byssoides*, Grev. *Byssoid Polysiphonia.* Filaments cartilaginous, alternately branched; branches decomposito-pinnate, patent, crowded; ramuli short, squarrose, capillary, multifid, single-tubed; articulations of the stem 3—4 striate, 2—4 times as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 334. *Conf. byssoides, Dillw. t.* 58. *E. Bot. t.* 547.

Bantry bay; *Miss Hutchins.* Very common on our eastern and rare on our western shores. A delicate species, fine red when quite recent, but rapidly changing to a dull brown in fresh water, or on exposure to the air. It is easily distinguished from all our native species by its *single-tubed ramuli*: indeed this character, together with its peculiar *habit*, would lead one to suspect that it belonged more properly to *Dasya* than *Polysiphonia*, but it does not produce the *stichidia* peculiar to that genus.

52. DASYA. *Ag.* Dasya.

Frond filamentous; main filaments inarticulate, cartilaginous, beset with articulated, penicellate or pinnate, single-tubed ramuli. *Fructification* double: 1. coriaceo-acuminate capsules, furnished with a terminal pore, and containing pear-shaped seeds: 2. lanceolate *receptacles (stichidia)*, containing granules set in transverse fascia.—Name; δατυς, *hairy;* in allusion to the slender ramuli.

1. D. *coccinea*, Ag. *Scarlet Dasya.* Stems elongated, robust, irregularly branched; branches bipinnate; pinnulæ fasciculato-multifid; articulations of the ramuli as long as broad.

Harv. in Hook. Br. Fl. v. ii. *p.* 335.—*Conf. coccinea, Dillw. t.* 36. *E. Bot. t.* 1055.

Sea-shores, common. 6—8 inches high, bright red, and beautifully pinnate. *Stems* thick, densely villose.

2. D. *ocellata*, Harv. *Ocellated Dasya.* Stems short, slender, subsimple, beset on all sides with long, erecto-patent, dichotomous, penicellate ramuli; articulations 3—4 times longer than broad; receptacles lanceolate, attenuate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 335.—*Cer. ocellatum, Grateloup.*—*D. simpliciuscula, Ag. Sp. v.* ii. *p.* 122.

Very rare. Black Castle, Wicklow; *W. H. Harvey.*

3. D. *Hutchinsiæ*, Harv. *Miss Hutchins' Dasya.* Stems short, slender, much and irregularly branched, beset on all sides with very short, divaricating, dichotomous ramuli; articulations about twice as long as broad; receptacles oblong, suddenly acuminate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 335.—*Conf. Arbuscula, Dillw. t. G. (excl. t.* 85.*)*

Rocky shores, not uncommon. Bantry bay; *Miss Hutchins.* Miltown Malbay; Kingstown Harbour; Killiney, and Wicklow; *W. H. Harvey.* Arran; *Mr. R. Ball. Stems* tufted, 2—4 inches high, much branched, and well distinguished from the preceding by the form of its receptacles. As stated in the British Flora, this species was once confounded with the very different *Callithamnion Arbuscula*; and Dillwyan figure, (*t.* G.) which represents its fruit, being referred by him to the latter species, has caused no small perplexity to botanists imperfectly acquainted with either.

53. Ceramium. *Adans. Roth.* Ceramium.

Frond filamentous: *filaments* articulated, mostly dichotomously branched, reticulated with veins; dissepiments opaque. *Fructification* double: 1. *Capsules* with a membranaceous pericarp, containing numerous angular *seeds*; 2. simple oblong *granules*, imbedded in the ramuli.—Name; κεραμιον, a *little pitcher*; from the form of the capsules; but as the genus now stands, the resemblance is not striking.

1. C. *rubrum*, Ag. *Red Ceramium.* Filaments cartilaginous, irregularly branched, toruloso-contracted at the dissepiments; articulations coloured, reticulated with veins. *Harv. in Hook. Br. Fl. v.* ii. *p.* 336.—*Conf. rubra, Dillw. t.* 34. *E. Bot. t.* 1166.

On rocks and Algæ, very common.

2. C. *diaphanum*, Roth. *Variegated Ceramium.* Filaments thickish, irregularly branched, set with lateral, slender, dichotomous ramuli; dissepiments swollen, opaque; articulations hyaline, those of the principal stems 3—4 times as long as broad, of the ramuli very short. *Harv. in Hook. Br. Fl. v.* ii.

p. 336.—*Conf. diaphana, Dillw. t.* 38. *E. Bot. t.* 1742. *Cer. rubrum, diaphanous var. Wyatt. Alg. Danm. No.* 87.

Sea-shore, on various Algæ, common.

3. C. *fastigiatum,* Harv. MSS. *Fastigiate Ceramium.* Filaments capillary, equal throughout, dichotomous, level-topped; dissepiments opaque; lower articulations hyaline, 3—4 times longer than broad, upper coloured, short. *Conf. fastigiata, Roth. Cal.* 2. *p.* 225.?? *Cer. diaphanum, β. arachnoides, Ag. Sp. v.* ii. *p.* 152. *Cer. diaphanum, Wyatt. Alg. Danm. No.* 86.

Sea-shores. At the instance of my valued friend, Mrs. Griffiths, I have ventured to separate this species from *C. diaphanum,* with which all previous authors have confounded it. It has, however, a very different habit and ramification, and is, at least, as distinct as some other species of the genus. Mrs. Griffiths has so well pointed out, in a letter to me, the characters which peculiarly distinguish it from *C. diaphanum,* that I cannot do better than quote her words: "Pray observe that *C. fastigiatum* has no *principal* stem or branches; that it is uniformly and constantly dichotomous and level-topped, and that the threads of which the tuft is composed are of an equal diameter from the base to the summit; and this holds good in plants from all parts of the coast. Now *C. diaphanum* has a principal stem and branches, divides irregularly, almost distichously, the extremities almost fan-shaped, and very unequal at the top; the joints are also more distant and irregular." *Mrs. G. in litt.*

4. C. *ciliatum,* Ducluz. *Spiny Ceramium.* Filaments rigid, dichotomous, fragile; articulations hyaline; joints furnished with whorled or solitary prickles; apices remarkably involute. *Harv. in Hook. Br. Fl. v.* ii. p. 336.—*Conf. ciliata, Dillw. t.* 53. *E. Bot. t.* 2428.

On rocks, corallines, &c. A very variable plant, both in general appearance and in the nature and number of the prickles; and, perhaps, future observations may show the propriety of resolving it into several species. But without a careful examination of specimens from all parts of the coast, such a proceeding would, in all probability, serve no other purpose than that of burdening the science with useless synonyms.

54. GRIFFITHSIA. *Ag.* Griffithsia.

Frond filamentous; *filaments* articulated throughout, mostly dichotomous; ramuli single-tubed, often whorled; dissepiments hyaline. *Fructification* double: 1. clustered *capsules* with hyaline pericarps; 2. roundish, gelatinous, involucrated *receptacles (flavellæ),* including minute *granules.*—Named by Agardh, in honour of Mrs. Griffiths of Torquay, a most acute and indefatigable Algologist, to whose exertions the British Flora stands indebted for many of its most beautiful species.

1. G. *equisetifolia,* Ag. *Equisetum-like Griffithsia.* Fila-

ments robust, cartilaginous, whorled throughout with imbricated, incurved, many times dichotomous ramuli. *Harv. in Hook. Br. Fl.* **v. ii.** *p.* **337.—***Conf. equisetif. Dillw. t.* **54.—***E. Bot. t.* **1479.**

On our western shores, common. *Stems* 6—12 inches high, very robust and much branched. *Branches* tapering to a point. *Fructification* imperfectly known.

2. G. ***simplicifilum*, Ag.** ***Slender Equisetum-like Griffithsia.*** **Filaments slender, irregularly branched, whorled with imbricated, straight, once-forked ramuli.** ***Ag. Sp. Alg. v.*** **ii.** ***p.*** **134.**

At Ardinairy Point, County of Wicklow, among rejectamenta; and growing very sparingly on rocks underneath Black Castle, Wicklow; *W. H. Harvey.* 4—8 inches high, slender, (compared with *G. equisetifolia,*) much branched. *Branches* long, mostly simple, the smaller ones often bare of ramuli, the larger closely whorled with *straight* branchlets forked at the base. This rare and beautiful species is closely allied to the preceding, but is well distinguished by its straight and nearly simple whorled ramuli. *Fruit* unknown.

3. G. ***multifida*, Ag.** ***Multifid Griffithsia.*** **Filaments slender, setaceous, distichously branched, whorled with dichotomous, incurved ramuli; whorls distant; articulations of the branches very long.** ***Harv. in Hook. Br. Fl. v.*** **ii.** ***p.*** **338.—** ***Conf. multifida, Huds. E. Bot. t.*** **1816.**

Rocky shores, not very uncommon. Bantry; *Miss Hutchins.* Kilkee and Miltown Malbay; *W. H. Harvey.* 2—6 inches high, slender. *Capsules* minute, scattered on the whorled ramuli.

4. G. ***setacea*, Ag.** ***Setaceous Griffithsia.*** **Filaments dichotomous, setaceous, rigid, straight, naked; axils very acute; articulations cylindrical, 5—6 times longer than broad.** ***Harv. in Hook. Br. Fl. v.*** **ii.** ***p.*** **338.—*****Conf. setacea, Dillw. t.*** **82.** ***E. Bot. t.*** **1689.**

Sea-shores, not uncommon. 3—8 inches long, forming dense, often inextricable tufts. *Filaments* slender, naked, throwing out occasional creeping fibres. *Involucres* raised on lateral clavate peduncles.

5. G. ***corallina*, Ag.** ***Coral-like Griffithsia.*** **Filaments thickish, gelatinous, dichotomous; axils patent; articulations swollen upwards, 2—4 times longer than their diameter.** ***Harv. in Hook. Br. Fl. v.*** **ii.** ***p.*** **338.—*****Conf. corallina. Dillw. t.*** **98.** ***E. Bot. t.*** **1815.**

Very rare. South Bull; *W. H. Harvey.* Black rocks, Portrush; *Mr. D. Moore.*

55. CALLITHAMNION. *Lyngb.* Callithamnion.

Frond filamentous; filaments articulate, mostly pinnate, one-tubed; dissepiments hyaline. *Fructification:* 1. trisporous capsules with hyaline pericarps, scattered on the ultimate ramuli; 2. roundish or lobed gelatinous *receptacles (flavellæ),* containing large granules, seated on the main branches.—Name; *καλος, beautiful,* and *θαμνος,* a *shrub.* A most difficult genus, forming endless species and varieties. In the following descriptions, the term "*plumula*" is applied to a penultinate-branchlet, when pinnate or bipinnate.

A. *Filaments erect, much branched, not rising from creeping fibres.*

a. *Ramuli opposite.*

1. C. *Plumula,* Lyngb. *Pectinated Callithamnion.* Ramuli short, opposite, recurved, pectinated on their inner margins. *Harv. in Hook. Br. Fl. v.* ii. *p.* 339.—*Conf. Plumula, Dillw. t.* 50.—*Conf. Turneri, E. Bot. t.* 1637. (not *t.* 2339.)

Sea-shores, not common. Bantry; *Miss Hutchins.* Killiney; *W. H. Harvey.* Black rocks, Portrush; *Mr. D. Moore.* 2—4 inches high, much branched, fine rose-red. This is well marked by its very peculiar and symmetrical ramuli.

2. C. *pumilum,* Harv. *Slender Cruciate Callithamnion.* Filaments sparingly branched; ramuli very short, opposite, pinnated; pinnæ abreviated, very erect; main articulations* 2—3 times longer than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 339.

Very rare. Miltown Malbay; *W. H. Harvey.* About an inch high, distantly branched, forming small tufts; each articulation furnished with a pair of very short pinnated ramuli.

b. *Ramuli alternate; pinnate or dichotomous.*

1. *Secondary branches pinnate or plumulate.*

† *Main stems inarticulate.*

3. C. *Arbuscula,* Lyngb. *Shrubby Callithamniom.* Stems naked below, robust, cartilaginous; main branches set with short branchlets, which are again thickly clothed with minute, imbricated, oblong plumules; ultimate pinnules simple or forked, recurved or divaricating, attenuate, acute; capsules very numerous, lining the inner faces of the pinnules. *Harv. in Hook. Br. Fl. v.* ii. *p.* 340.—*Conf. Arbuscula, R. Brown. Dillw. t.* 85. *E. Bot. t.* 1916?—*Dasya Arbuscula and spongiosa, Ag.*

On rocks and shells, on our northern and western shores, very common; but not found, that I am aware, on the east coast. 3—5 inches high, deep claret colour. *Stems* as thick as a crow quill, simple below, much branched above.

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* By *main* articulations will be understood, the articulations of the stem or branches, in contra-distinction to those of the ramuli.

4. C. *lanosum*, Harv. *Woolly Callithamnion.* Stem slender, inarticulate (or very indistinctly jointed), much branched; branches jointed, excessively divided, entangled, flexuose, spreading; plumules crowded, quadrifarious, broadly ovate, obtuse; lower pinnules simple, divaricate; upper spreading and subpinnulate; articulations of the branches 2—3 times longer than broad, of the pinnæ shorter; capsules subsolitary. *Harv. in Hook. Br. Fl. v.* ii. *p.* 341.

At Killiney and Wicklow; *W. H. Harvey.* 1—3 inches high, rose-red, much entangled. In drying it fades to a dull pink, wholly without gloss; and on re-immersion is extremely fragile, and quickly loses colour. Its nearest affinity is with *C. roseum.*

†† *Main stems more or less distinctly articulate.*

* *Plumules lax, ovate, lanceolate or irregular, subsimply pinnate.*

5. C. *roseum*, Ag. *Rosy Callithamnion.* Stems much and loosely branched; secondary branches long, flexuose, subdistichously plumulate; plumules lax, with a roundish outline, crowded toward the tops of the branches; pinnules long, patent, subsimple and flexuose; main articulations 4—5 times, those of the pinnæ 2—3 times, longer than broad; capsules elliptical, scattered, near the base of the pinnæ. *Harv. in Hook. Br. Fl. v.* ii. *p.* 341.—*Conf. rosea, E. Bot. t.* 966. *Dillw. t.* 17.??—*Cer. roseum, Roth.*

On the larger Algæ. Bantry; *Miss Hutchins.* Arran; *J. T. Mackay.* 2—4 inches high, excessively branched; *branches* long and flexuose, distichous or quadrifarious. *Plumules* fasciculate toward the summit. 4—6 lines long, the lower pinnules simple, the upper sparingly pinnulate about the apices. *Colour* purple-red. *Main articulations* somewhat opaque, filled with jointed veins.

6. C. *polyspermum*, Ag. *Many-fruited Callithamnion.* Filaments slender, delicate, loosely branched, somewhat naked below, distichously plumulate above; plumules linear-oblong (in outline); pinnæ short, simple, patent, acute, spine-like; articulations of the branches 4—5 times, of the ramuli twice as long as broad; capsules lining the inner faces of the pinnæ. *Harv. in Hook. Br. Fl. v.* ii. *p.* 342.

Bantry bay; *Miss Hutchins.* Youghal; *Miss Ball.* Portrush; *Mr. D. Moore.* 1—3 inches high, somewhat naked or with short branches at the base, much and sub-flabellately branched upwards; lower part of the branches set with spine-like ramuli, upper alternately plumulate. *Plumules* simply pinnate, the pinnæ nearly of equal length throughout. *Colour* full dark red. *Main articulations* swollen at the joints, with a very narrow tube.

7. C. *tetricum*, Ag. *Rope-like Callithamnion.* Rigid;

branches densely ramulose, hairy below, plumulate above; plumules crowded, quadrifarious, oval, simply pinnate; pinnæ acute, basally attenuate, erecto-patent; articulations 2—3 times longer than broad; capsules elliptical, minute, on short lateral processes of the pinnulæ. *Harv. in Hook. Br. Fl. v.* ii. *p.* 342. *Conf. tetrica, Dillw. t.* 81. *E. Bot. t.* 1915.

Rocky shores; common on our western and southern coasts. 2—8 inches long, forming dense ropy tufts, of a dull red-brown colour.

8. C. *tetragonum*, Ag. *Square-stalked Callithamnion.* Stem robust, naked below, decomposito-pinnatedly branched; branches patent, set with short, alternate, spreading plumules, which are pinnate below, and fasciculately multifid above; apices obtuse, with a mucro; articulations once and half as long as broad; joints contracted. *Harv. in Hook. Br. Fl. v.* ii. *p.* 343.—*Conf. tetragona, Dillw. t.* 65. *E. Bot. t.* 1690.

On the larger Algæ, not uncommon. 3—8 inches high, dull red, becoming brownish in the herbarium. The robust, cartilaginous, and many times pinnate stems, with the short articulations, and ramuli *contracted* at the apex, (thus suddenly acuminate,) distinguish this species.

9. C. *granulatum*, Ag. (?) *Warted Callithamnion.* Stem robust, naked below, pinnatedly branched; branches erecto-patent, set with short, subquadrifarious, erect plumules, which are pinnate below, and multifid and level-topped above; pinnules subulate, very erect and close pressed; articulations of the ramuli twice as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 343. *Ag. Sp. Alg. v.* ii. *p.* 177.?

At Kilkee, County of Clare, on *Codium tomentosum.* 2—4 inches high. *Stems* mostly simple, set with alternate branches; each *frond* with a lanceolate outline. *Colour* brownish-red.—It must be confessed that this borders very closely, indeed, on the preceding, from which it is best distinguished by its more erect and level-topped plumules, subulate pinnules, and rather longer joints. But, after all, perhaps, it is not sufficiently entitled to specific rank. Having seen no authentic specimens of Agardh's plant, I am unable, with certainty, to quote his work, but his description agrees pretty fully with our Irish specimens.

10. C. *Grevillii*, Harv. *Greville's Callithamnion.* Slender, sparingly and distichously branched; plumules linear-obovate, round-topped; pinnæ erect; the lower ones short and spine-like the upper long, branched at top; articulations of branches 2—3 times, of pinnules once and half as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 345.—*C. roseum, Grev., Fl. Edin. p.* 311, *(not of Roth.)*

On rocks and Algæ in the sea. Bantry bay; *Miss Hutchins.* 1—2 inches high, forming small tufts. *Branches* long, their lower part furnished with short irregular ramuli, their upper half distichously plumulate. *Plumules* long, narrow-obovate; upper pinnæ alternately branched at top. *Colour* purplish-red.

* * *Plumules dense, lanceolate or narrow-oblong, bipinnate.*

11. C. *gracillimum*, Ag. *Graceful Callithamnion.* Filaments capillary, decomposito-pinnate, distichous; upper plumules long, narrow-ovate or sublanceolate, patent, bi-tripinnate; main articulations cylindrical, 3—4 times, those of the pinnæ 2—3 times longer than broad; capsules terminal on the pinnules. *Harv. in Hook. Br. Fl. v.* ii. *p.* 345.

Very rare. Black Castle, Wicklow; *W. H. Harvey. Filaments* 1—4 inches high, distichously branched, many times pinnate; the outline of the principal branches broadly ovate, and resembling most delicate *ferns* in miniature. *Colour* rose-red.

2. *Secondary or smaller branches alternately dichotomous. Capsules elliptical, solitary, mostly axillary; favellæ binate.*

12. C. *corymbosum*, Ag. *Corymbose Callithamnion.* Capillary, flaccid, gelatinous, entangled; secondary branches alternate, excessively dichotomous, subflabellate, level-topped; ultimate dichotomies acute, appressed; articulations of branches 8—10, of the ramuli 5—6 times longer than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 346.—*Conf. corymbosa, E. Bot. t.* 2352. *(joints too short.) Cal. byssoideum, Am. MS. Harv. l. c. p.* 342.

Rare. Bantry bay; *Miss Hutchins.* South Bull, Dublin; *W. H. Harvey.* 1—3 inches high, excessively delicate and tender, much branched, secondary branches byssoid, rose-red. I have been favoured with an extensive series of this variable plant by my kind friends, Mrs. Griffiths and Miss Cutler; and now fully agree with these acute botanists in considering the *C. byssoideum* of the *Br. Fl.* only as a variety, whose peculiar characters probably depend on age. The position of the capsules, which I had hoped constant, is very variable; and they are often lateral and axillary in the same individual.

13. C. *versicolor*, Ag. *Changeable Callithamnion.* Filaments setaceous at base, capillary above, distichously branched in a pinnate manner; penultinate branches naked below, dichotomous above, level-topped; ultimate dichotomies spreading; main articulations 4—6, those of the ramuli 2—3 times longer than broad; capsules solitary, axillary. *Harv. in Hook. Br. Fl. v.* ii. *p.* 346.—*β. seirospermum;* ultimate ramuli moniliform; joints globular, inclosing a dark red mass. *Wyatt. Alg. Danm. No.* 91.

Very rare. South Bull, Dublin, (a single specimen); *W. H. Harvey.* 3—4 inches high, as thick as hog's bristle at base, distichously branched, of a fine rose-red colour. A larger and coarser plant than *C. corymbosum*, the branches pinnate and naked at base.—β. is a very remarkable variety discovered at Torquay by Mrs. Griffiths, in which the ultimate ramuli seem resolved into chain-like strings of capsules; each joint having the appearance and structure of a capsule. This variety of fructification I have never seen produced in any other species of the genus.

14. C. *spongiosum*, Harv. *Spongy Callithamnion.* Stems robust, cartilaginous, branched in every direction; branches thickly set with dense, quadrifarious, repeatedly dichotomous, round-topped branchlets; axils patent; apices short, bifid: articulations of the branches swollen at the joints, thrice as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 346. *Wyatt. Alg. Danm. No.* 93.

On perpendicular rocks on our eastern shores; as at Kingstown, Killiney, Wicklow, &c. where it occupies the place that *C. Arbuscula* and *tetricum* hold on the western; *W. H. Harvey.* 2—4 inches high, flaccid. *Stems* shrubby. *Branches* spreading in every direction, and densely clothed with short secondary branches. *Colour* a red-brown.

15. C. *pedicellatum*, Ag. *Stalk-fruited Callithamnion.* Stems setaceous, loosely and irregularly branched; branches naked or set with short, alternate, subfasciculate, sparingly dichotomous branchlets; apices obtuse; articulations variable, mostly very long; capsules solitary, elliptical, or pyriform, axillary, pedicellate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 347.—*Conf. pedicell. Dillw. t.* 108. *E. Bot. t.* 1817.

Rare. Bantry; *Miss Hutchins.* Miltown Malbay; *W. H. Harvey.* *Stems* 2—6 inches high, as thick as horse hair. *Branches* sparingly divided, springing near the base, irregularly set with short ramuli, which are crowded round the apices in a penicellate manner; *apices* always very blunt. *Capsules* dark pyriform, seated on hyaline pedicels. *Colour* full pink, which is almost instantly discharged in fresh water, when the plant assumes a dull brown hue and rapidly decomposes.

B. *Small parasitical species, rising from creeping filaments; branches erect. Receptacles pedicellate, involucrate.*

16. C. *Turneri*, Ag. *Turner's Callithamnion.* Stems rising from creeping filaments, erect, simple, or slightly branched, oppositely pinnated; articulations of the stem 5—10 times longer than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 339.—*Conf. Turneri, Dillw. t.* 100. *E. Bot. t.* 2339. *(not t.* 1637.*)* *Cer. Turneri, Grev. Crypt. t.* 355.

On the larger Algæ, not uncommon. *Tufts* 1—2 inches high.

17. C. *Pluma*, Ag. *Feathery Callithamnion.* Stems rising from creeping filaments, erect, subsimple, naked below, the upper half oppositely pinnate; pinnæ erect, appressed; articulations of the stem 2—4 times longer than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 340.—*Conf. Pluma, Dillw. Supp. t. F*

On the stems of *Laminaria digitata.* Bantry; *Miss Hutchins.* Malbay; *W. H. Harvey.* *Stems* half an inch high, resembling beautiful minute feathers.

18. C. *repens*, Lyngb. *Creeping Callithamnion.* Stems rising from creeping filaments, erect, sparingly branched; branches alternate, patent, with a few short ramuli; articulations of the stem 3—6 times longer than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 348.—*Conf. repens, Dillw. t.* 18. *E. Bot. t.* 1608. *(the young plant.)*

On the larger Algæ. I fear this is not sufficiently distinct from some states of *C. Turneri.*

56. TRENTEPOHLIA. *Ag.* Trentepohlia.

Frond filamentous; filaments (minute, mostly parasitical,) erect, coloured, articulated; dissepiments hyaline. *Fructification* tufted, mostly terminal capsules.—Named in honour of a German Botanist.—This appears to me a very natural little group, though in essential character scarcely differing from *Callithamnion.* The species are mostly minute parasites.

* *Growing in the sea, or on maritime rocks.*

1. T. *Rothii*, Harv. *Roth's Trentepohlia.* Widely spreading, densely cæspitose; filaments slender, short, erect, dichotomous; branches elongate, straight, appressed; articulations twice as long as broad. *Callithamnion Rothii, Lyngb. Harv. in Hook. Br. Fl. v.* ii. *p.* 347.—*Conf. Rothii, Dillw. t.* 73. *E. Bot. t.* 1702.

Marine rocks, near high-water mark. *Tufts* ½—1 inch high, dense, deep red or purple. *Capsules* clustered, borne on short terminal subcorymbose ramuli.

2. T. *floridulum*, Harv. *Pale-red Trentepohlia.* Filaments short, densely entangled, sparingly branched; branches alternate or subdichotomous, nearly simple, appressed; articulations thrice as long as broad. *Callithamnion florid. Ag.*—*Harv. in Hook. Br. Fl. v.* ii. *p.* 348. *Conf. florid. Dillw. Sup. t. F.*

Rocks near low-water mark, Galway Coast; *J. T. Mackay.* Antrim; *Dr. Scott.* This, I imagine, is only *C. Rothii*, altered by growing in deeper water.

3. T. *purpurea*, Ag. *Purple Trentepohlia.* Filaments erect, very minute, forming continuous, velvety patches, slightly branched; branches dichotomous; articulations twice as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 382.—*Conf. purpurea, Dillw. t.* 43. *Byssus purpurea, E. Bot. t.* 192.

On rocks by the sea-coast, beyond high-water mark. Perhaps I am incorrect in introducing this species, (a native of the West of Scotland and England,) to the Irish Flora, without having a certain knowledge of its existence on our shores, though it is more than probable that it abounds on the trap rocks of our northern and western coasts. My apology for so doing is a desire to contrast it with *T. Rothii* and *floridulum,* in order to show how very slight are its distinguishing characters.

4. T. *sparsa,* Harv. *Scattered Trentepohlia.* Filaments minutely tufted, scattered, sparingly branched; branches spreading, unequal; articulations twice or thrice as long as broad; "capsules obovate, sessile, mostly axillary." (*Carm.*) *Callith. sparsum, Harv. in Hook. Br. Fl. v.* ii. *p.* 348.—*C. floridulum, Lyngb.* ?

On various marine Algæ. On *Conf. rupestris,* at Miltown Malbay; *W. H. Harvey.* Scarcely a line high. Distinguished from *T. purpurea* by its scattered habit and different habitat.

5. T. *Daviesii,* Harv. *Davies' Trentepohlia.* Rose-red, minutely tufted, much branched; branches flexuose, scattered, distant, erecto-patent, with a few erect ramuli; apices acuminate; articulations 3—5 times longer than broad. *Callith. Daviesii, Ag.—Harv. in Hook. Br. Fl. v.* ii. *p.* 348. *Conf. Daviesii, E. Bot. t.* 2329.

On *Ceramium rubrum,* at Bantry; *Miss Hutchins* and *Mr. R. Ball.* 2—4 lines high, elegantly tufted.

6. T. *secundata,* Harv. *Secund Trentepohlia.* Rose-red, very minute, tufted, flexuose, sparingly branched; branches set with short, secund, close-spreading, obtuse ramuli; articulations four times longer than broad. *Callith. secundatum, Ag.—Harv. in Hook. Br. Fl. v.* ii. *p.* 349. *C. Daviesii, β. secundata. Lyngb. Hydroph. Dan. t.* 41.

On *Porphyra laciniata, Alaria esculenta,* &c. A line or less in height, forming minute tufts or spreading in continuous velvety patches. *Capsules* tufted, terminal, on abbreviated ramuli.

7. T. *lanuginosa,* Harv. *Down-like Trentepohlia.* Nearly simple, exceedingly minute, brownish; ramuli short, obtuse, secund; articulations thrice as long as broad, pellucid in the centre. *Callith. lanuginosum, Lyngb.—Harv. in Hook. Br. Fl. v.* ii. *p.* 349. *Conf. lanug. Dillw. t.* 45.

On decaying filamentous Algæ, especially *Cer. rubrum,* very common. The most minute of the genus.

* * *Growing in fresh water.*

8. T. *pulchella,* Ag. *Beautiful Trentepohlia.* Filaments minute, virgate, tufted, much branched; branches erect, alternate, beset with short, opposite or secund ramuli; articulations four times as long as broad; capsules racemose. *Harv. in Hook. Br. Fl. v.* ii. *p.* 382.—*Conf. nana, Dillw. t.* 30. (*not characteristic.*) *E. Bot. t.* 2585.—*β. chalybea, Ag.—Conf. chalybea, Dillw. t.* 91. *E. Bot. t.* 1666. *f.* 1.

In mountain streams; growing on the naked rock, or on aquatic mosses. About Killarney, Glengariff, &c. ⅛—½ inch long, much branched. In α. rose-red, in β. dull bluish-grey. This closely resembles the marine *T. virgatula.*

Div. III. CHLOROSPERMEÆ.

Plants growing either in the sea, in fresh water, on damp ground, or in anomalous situations; filamentous, membranaceous, or amorphous; either hyaline or (owing to the presence of an internal granular mass), of a grass green, very rarely purple colour. Fructification: green or purple *sporules,* either filling the frond or collected into *sporidia,* rarely forming external *capsules.*

Tribe XIV. LEMANIEÆ.

Plants growing in fresh water, filamentous, inarticulate, of a cartilagineo-coriaceous substance and cellular structure. Fronds hollow, furnished at irregular distances with whorls of papillæ, or moniliform. Fructification: fasciculate, simple or dichotomous, moniliform filaments, attached to the inner surface of the tubular frond, and finally dissolved into elliptic sporules.

57. Lemania. *Bory.* Lemania.

Frond filiform, tubular, coriaceous, cellular, torulose. *Fructification:* hyaline sporules, aggregated into moniliform, simple or branched penicellate filaments, attached to the inner face of the tubular frond.—Name in honour of a French Alogologist, *M. Leman.*

1. L. *fluviatilis,* Ag. *River Lemania.* Filaments branched, olive-green, torulose, attenuated; intervals between the swellings cylindrical, much longer than they are broad. *Hook.*—*Hook. Br. Fl. v.* ii. *p.* 322.—*Conf. fluv. Dillw. t.* 29. *E. Bot. t.* 1763.

Rocky beds of rivers, in subalpine districts. Common in the rivulets about Killarney, &c.

Tribe XV. BATRACHOSPERMEÆ.

Plants growing in fresh water, filamentous, articulate, invested with gelatine. Fronds composed of aggregated, articulate, longitudinal fibres, whorled at uncertain intervals with short, horizontal, moniliform ramuli. Fructification: dense globular *masses attached to the verticillate ramuli, and consisting of minute, radiating, dichotomous, moniliform filaments.*

58. Batrachospermum. *Roth.* Batrachospermum.

Main filaments invested with gelatine, hyaline, tubular, longitudinally striated, composed of colourless jointed fibres, agglutinated together, beset with distant whorls of moniliform ramuli. *Fructification:* globules of dense filaments attached to the ramuli.—Name; βατραχος, a *frog*, and σπερμα, *frog-spawn*; which the species, when removed from the water, resemble. This genus is in structure allied to *Trichocladia* and *Mesogloia*, but essentially differs in the structure of its fructification. Indeed the *Batrachospermeæ* are much in the same way related to the *Gloiocladeæ*, as the *Alismaceæ* are to *Ranunculaceæ*.

1. B. *vagum*, Ag. *Cylindrical Batrachospermum.* Frond subdichotomous, cylindrical, equal; apices of the branches incrassated. *Harv. in Hook. Br. Fl. v.* ii. *p.* 388.

In alpine bogs and lakes. This beautiful species varies in colour, from dull to bright and even æruginose green; under the microscope it is hyaline.

2. B. *moniliforme*, Ag. *Moniliform Batrachospermum.* Irregularly branched; branches moniliform; apices attenuated. *Harv. in Hook. Br. Fl. v.* ii. *p.* 388.—*Conf. gelatinosa, Dillw. t.* 32. *E. Bot. t.* 689.—*β. detersum, Ag.;* verticillate ramuli subobliterated. *Conf. atra, Dillw. t.* 11. *E. Bot. t.* 690.

In sub-alpine rivulets. Scarcely differs from the former, but by its rather more distant whorls.

Tribe XVI. CHÆTOPHOROIDEÆ.

Plants growing in the sea or in fresh water, invested with gelatine, either filiform, or (a number of filaments being collected together) formed into gelatinous amorphous fronds. Filaments articulate; articulations hyaline in the middle, coloured at the dissepiments. Fructification: so far as known, minute capsules attached to the ramuli.

59. Bolbochæte. *Ag.* Bolbochæte.

Filaments free, articulated, branched; each articulation bearing at its truncate apex either an elongated, inarticulate, deciduous seta, or a sessile, sphærical capsule; base of the seta scutate, amplexicaul.—Name; βολβος, a *bulb*, and χαιτη, a *bristle;* in allusion to the setaceous ramuli with swollen bases.

1. B. *setigera*, Ag. *Setigerous Bulbochæte. Ag. Syst. p.* 123. *Harv. in Hook. Br. Fl. v.* ii. *p.* 350.—*Conf. vivipara, Dillw. t.* 59.

On fresh water plants, in lakes, &c. About half an inch long, densely tufted, dull greenish-brown.

60. DRAPARNALDIA. *Bory.* Draparnaldia.

Filaments free, gelatinous; stems subhyaline, emitting, at the joints, pencils of coloured ramuli. *Fructification* not certainly known.—Named in honour of *J. P. R. Draparnaud*, a French Naturalist.

1. D. *plumosa*, Ag. *Feathery Draparnaldia.* Pencils of ramuli linear-lanceolate, acute. *Harv. in Hook. Br. Fl. v.* ii. *p.* 388.—*Conf. lubrica, E. Bot. t.* 2087.

In streams and wells.

2. D. *glomerata*, Ag. *Clustered Draparnaldia.* Pencils of ramuli ovate, obtuse, patent. *Harv. in Hook. Br. Fl. v.* ii. *p.* 388.—*Conf. mutabilis, Dillw. t.* 12. *E. Bot. t.* 1746.

In streams and wells. This scarcely differs from the preceding.

3. D. *tenuis*, Ag. *Slender Draparnaldia.* Ramuli simple, subfasciculate; primary filaments partially coloured. *Harv. in Hook. Br. Fl. v.* ii. *p.* 388.—*Conf. lubrica, Dillw. t.* 57.—*C. protensa, Dillw. t.* 67.

In rivulets. This has quite the habit of *Conferva*, and very different, indeed, from that of the two former species.

61. CHÆTOPHORA. *Ag.* Chætophora.

Frond gelatinous, globose or lobed, rarely plane and crustaceous, composed of numerous filaments aggregated together, and issuing from a common base. *Filaments* articulated, branched; articulations of the branches subhyaline, those of the ramuli coloured. *Fructification:* capsules attached to the ramuli.—Name; χαιτη, a *bristle*, and φορεω, *to bear;* the ramuli are, in some stage of growth, tipped with long setaceous points or bristles. Fructification has only been discovered on *C. pisiformis* and *C. pellita.*

1. *Grow in fresh water.*

1. C. *endiviæfolia*, Ag. *Stag's-horn Chætophora.* Frond elongated, filiform, somewhat compressed, subdichotomously

branched. *Harv. in Hook. Br. Fl. v.* ii. *p.* 389.—*Ulva incrassata, E. Bot. t.* 967.

In lakes and streams, attached to stones.

2. C. *tuberculosa,* Hook. *Tubercular Chætophora.* Frond at first globose and firm, afterwards much lobed, fragile and hollow; filaments very slender, flexuose, hyaline; ramuli coloured, palmato-fasciculate. *Harv. in. Hook. Br. Fl. v.* ii. *p.* 389.—*Rivularia tuberculosa, E. Bot. t.* 2366.

In boggy pools.

3. C. *elegans,* Ag. *Elegant Chætophora.* Frond subglobose, gelatinous, solid, green; filaments subdichotomous; ramuli fastigiate, attenuate; the apices produced beyond the gelatine. *Carm.*—*Harv. in Hook. Br. Fl. v.* ii. *p.* 389.

In stagnant pools.

2. *Marine, crustaceous.*

4. C. *pellita,* Lyngb. *Purple Crustaceous Chætophora.* Frond purple-brown, crustaceous, gelatinoso-coriaceous, indefinitely spreading. *Harv. in Hook. Br. Fl. v.* ii. *p.* 390. *Berk. Alg. t.* 1. *f.* 3.

Rocks and stones in the sea. Miltown Malbay; *W. H. Harvey.*

62. MYRIONEMA. *Grev.* Myrionema.

Mass gelatinous (exceedingly minute), effused, composed of very short, clavate, erect, mostly simple filaments, "fixed at their base to a thin expansion." (*Grev.*) *Fruit: capsules* at the base among the filaments.—Name; μυριον, a *thousand,* and νημα, a *filament.*

1. M. *strangulans,* Grev. *Convex Myrionema.* "Subconvex, confluent; filaments subcylindrical; capsules shortly pedicellated, "affixed to the basal lamina." *Grev. Crypt. t.* 300. *Harv. in Hook. Br. Fl. v.* ii. *p.* 391.

On various Algæ, parasitical. 1—2 lines in diameter, brown.

TRIBE XVII. CONFERVEÆ.

Plants growing in the sea or in fresh water, filamentous, articulate, without definite gelatine. Fronds very variable in appearance, simple or branched; articulations more or less filled with a green, very rarely brown or purple, granular mass, which affects various forms, and is supposed to be of a sporaceous nature.

63. Conferva. *Ag.* Conferva.

Filaments articulated, free, distinct, uniform, simple or branched. ***Fruit*** (?) an internal, coloured, granular *mass (endochrome)*. ***Colour*** green, rarely purple or orange.—Name, from *conferruminare*, to *consolidate*.

A. *Filaments simple.*

a. ***Filaments decumbent, arachnoid, forming strata of a purple colour. Inhabit alpine bogs.***

1. C. *ericetorum*, Roth. *Moor Conferva.* Filaments very slender, simple, forming a thin, dull, purple stratum; articulations a little longer than broad; endochrome dark-coloured, filling the tube finally, bipartite, unaltered in drying. *Dillw. Conf. t.* 1. *E. Bot. t.* 1553. *Harv. in Hook. Br. Fl. v.* ii. *p.* 350.

On dry heaths, frequent: occasionally in wet spots.

2. C. *purpurascens*, Carm. *Purple Conferva.* Filaments very slender, simple, forming a cloudy, floating, purple stratum; articulations once or twice as long as broad; endochrome collapsed, pale, rarely filling the tube. *Harv. in Hook. Br. Fl. v.* ii. *p.* 350.

In old turf pits, bogs, &c.

b. *Filaments elongated, floating, rarely attached, flaccid, forming green strata. Inhabit fresh water.*

3. C. *bombycina*, Ag. *Silky Conferva.* Filaments excessively fine, forming a cloudy, floating, yellow-green stratum; articulations 3—5 times longer than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 350.—*Conf. sordida, Dillw. t.* 60.

In stagnant waters, infesting aquatic plants.

4. C. *floccosa*, Ag. *Floccose Conferva.* Filaments very fine, forming pale-green floating strata; articulations once or twice as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 351.—*C. fugacissima, Dillw. Suppl. t. B.*

In ditches and pools, with the preceding.

5. C. *zonata*, Webr. et Mohr. *Banded Conferva.* Filaments unequal, forming bright-green lubricous masses; articulations rather longer than broad, marked in the centre with a full-green band. *Ag. Syst. p.* 90. *Dillw. p.* 41. *t.* 47. *(C. lubrica.) Harv. in Hook. Br. Fl. v.* ii. *p.* 351.

On stones in rivulets.

6. C. *vesicata*, Ag. *Inflated Conferva.* Filaments very

slender, forming dull-green strata; articulations variable in length, 2—5 times longer than broad, here and there inflated. *Harv. in Hook. Br. Fl. v.* ii. *p.* 351.—*C. alternata, Dillw. Sup. t. B. C. tumidula, E. Bot. t.* 1670.

In stagnant water.

7. C. *rivularis*, Linn. *River Conferva.* Filaments slender, very long, straight, bright-green, silky, forming tufted bundles; articulations 2—4 times longer than broad. *E. Bot. t.* 1654. *Dillw. t.* 39. *Harv. in Hook. Br. Fl. v.* ii. *p.* 351.

In streams and rivers, common.

8. C. *mucosa*, Mert. *Mucous Conferva.* Filaments forming a floating bright-green stratum, extremely gelatinous, invested with definite mucus; articulations about as long as broad. *Dillw. Conf. Suppl. t. B. Harv. in Hook. Br. Fl. v.* ii. *p.* 351.

In stagnant water, rare. Bantry; *Miss Hutchins.*

9. C. *dissiliens*, Dillw. *Fragile Conferva.* Filaments elongated, straight, very fragile, slimy and gelatinous, forming bright green floating masses; articulations half as long as broad. *Dillw. Conf. t.* 63. *Harv. in Hook. Br. Fl. v.* ii. *p.* 352.

In streams and ditches. Glendine-wood; *Miss Ball.* I am not well acquainted with this plant; may it not prove a true *Desmidium?*

10. C. *capillaris*, Linn. *Capillary Conferva.* Filaments pale-green, void of lubricity, much curled and interwoven into subrigid, extensive strata; articulations 3—4 times longer than broad. *E. Bot. t.* 2364. *Harv. in Hook. Br. Fl. v.* ii. *p.* 352. —*C. crispa, Dillw. Suppl. t. B.*

In streams and rivulets, not rare.

c. *Filaments forming crisped, entangled strata, green. Inhabit the sea or salt water ditches.*

11. C. *Linum*, Roth. *Flax-like Conferva.* Filaments thick, rigid, crisped, forming loose extensive bundles of a dull green colour; articulations once and half as long as broad. *Ag. Syst. p.* 97. *Harv. in Hook. Br. Fl. v.* ii. *p.* 352.

In salt water ditches, along the muddy sea-shore, or in the sea. At Wicklow; *W. H. Harvey.* Portstewart; *Mr. D. Moore.*

12. C. *crassa*, Ag. *Thick Conferva.* Filaments very thick, of great length, deep glossy-green, much crisped, rigid, forming loosely entangled harsh masses; articulations as long as broad. *Conf. capillaris, Dillw. t.* 9.—*C. crassa, Ag. Harv. in Hook. Br. Fl. v.* ii. *p.* 352.

In salt water ditches. Abundant in ditches by the North Wall, Dublin.

13. C. *tortuosa*, Dillw. *Twisted Conferva.* Filaments rigid,

slender, much curled and twisted, forming broad, closely entangled strata; articulations 2—3 times longer than broad. *Dillw. t.* 46. *Harv. in Hook. Br. Fl. v.* ii. *p.* 352.

On marine rocks, abundant.

14. C. *implexa*, Dillw. *Interwoven Conferva.* Filaments very slender, capillary, rather flaccid, forming extensive, much entangled, bright-green strata; articulations rather longer than broad. *Dillw. Sup. t. B. Harv. in Hook. Br. Fl. v.* ii. *p.* 352. *Bangia Johnstoni, Grev. in Johnst. Berw. Fl. v.* ii. *p.* 260.

On marine rocks. Bantry; *Miss Hutchins. Filaments* half the diameter of *C. tortuosa*, with shorter joints.

15. C. *ulothrix*, Lyngb. *Short-jointed curled Conferva.* Filaments slender, flexuose, entangled, somewhat rigid; articulations rather shorter than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 353.

In rocky pools, attached to small Algæ. Bantry: *Miss Hutchins*, whose specimen is mixed with *C. implexa*, from which this species is solely distinguished by its shorter joints.

16. C. *perreptans*, Carm. *Creeping Conferva.* Filaments slender, crisped, entangled into dull-green strata, bent at acute angles, and at the genuflexion sending out attenuated creeping radicles; articulations about twice as long as broad. *Zygnema littoreum, Lyngb. Hydr. Dan. t.* 59.—*C. perreptans, Harv. in Hook. Br. Fl. v.* ii. *p.* 353.

On rocks, near the verge of high-water mark. Miltown Malbay. This may, perhaps, be only a variety of *C. tortuosa.* It has lately been discovered on the Coast of Devonshire by *Mrs. Griffiths.*

17. C. *arenosa*, Carm. *Strand Conferva.* Filaments slender, rigid, interwoven into broad strata; articulations 3—5 times longer than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 353.

On the flat shore, about half-tide level. Bantry bay; *Mr. R. Ball. Filaments* very long and slender, forming wide strata.

d. *Filaments tufted, with a scutate root, straight, green. Inhabit the sea.*

18. C. *Melagonium*, Web. et Mohr., Ag. *Wiry Conferva.* Filaments elongate, scattered, straight, thick, erect, stiff and wiry, dark-green; articulations twice as long as broad. *Dillw. Suppl. t. B. Harv. in Hook. Br. Fl. v.* ii. *p.* 353.

On rocky shores, rare. Miltown Malbay, &c. Portrush; *Mr. D. Moore.*

19. C. *ærea*, Dillw. *Harsh verdigris Conferva.* Filaments elongated, tufted, straight, harsh, brittle, yellow-green; articulations as long as broad. *Dillw. t.* 80. *E. Bot. t.* 1929. *Harv. in Hook. Br. Fl. v.* ii. *p.* 354.

Sand-covered rocks in the sea. 3—12 inches long, as thick as hog's bristle, yellow-green, harsh.

e. *Filaments rising from disciform tubercles, and forming penicillate tufts, olivaceous, parasitical. Inhabit the sea.*

20. C. *fucicola*, Velley. *Large parasitic Conferva.* Filaments rising from a minute tubercle, penicillate, flaccid, membranaceous; articulations about twice as long as broad. *Dillw. t.* 66. *Harv. in Hook. Br. Fl. v.* ii. *p.* 345.

On Fuci, especially *F. nodosus* and *vesiculosus*, common.

21. C. *flaccida*, Dillw. *Flaccid rusty Conferva.* Tubercles small; filaments penicillate, flaccid and tender; lower articulations half as long as broad, upper of equal length and breadth. *Dillw. Conf. Sup. t. G. Harv. in Hook. Br. Fl. v.* ii. *p.* 355.

Parasitical on *Cystoseira fibrosa.*

22. C. *curta*, Dillw. *Small Parasitic Conferva.* Filaments minute, rising from a tubercle, rather rigid, subpenicillate; articulations about as long as broad. *Dillw. t.* 76. *Harv. in Hook. Br. Fl. v.* ii. *p.* 355.

On sundry Fuci.

23. C. *scutulata*, Sm. *Target Conferva.* Olive-brown; filaments branched at the base, densely combined into a depressed peltate mass, rooted in the centre; joints as long as broad. *Sm.*—*Dillw. t.* 76. *Harv. in Hook. Br. Fl. v.* ii. *p.* 355.

On *Himanthalia lorea*; on which it forms broad wart-like tubercles.

B. *Filaments branched.*

a. *Inhabit fresh water.* (C. glomerata *often grows in the sea.*)

24 C. *flavescens*, Roth. *Yellowish branched Conferva.* Forming pale yellowish strata; filaments slender, sparingly branched; branches alternate or subdichotomous, erecto-patent, with scattered, elongated, alternate or secund ramuli; articulations 8—9 times longer than broad. *Dillw. Conf. Suppl. t. E.*—*E. Bot. t.* 2088. *Harv. in Hook. Br. Fl. v.* ii. *p.* 356.

In ditches of salt or fresh water.

25. C. *fracta*, Fl. Dan. *Broken divaricated Conferva.* Forming entangled dull-green strata; filaments somewhat rigid, much branched; branches divaricating; ramuli scattered and very patent: articulations 4—6 times longer than broad. *Dillw. t.* 14. *E. Bot. t.* 2338. *Harv. in Hook. Br. Fl. v.* ii. *p.* 356.

In ditches and lakes, common. This floats on the surface, in vast matted, dull green strata.

26. C. *glomerata*, Linn. *Green clustered Conferva.* Root scutate; filaments tufted, bushy, subrigid, bright green; branches crowded, irregular, erect; ultimate ramuli secund, subfasciculate; articulations 4—8 times longer than broad. *Dillw. t.* 13.—*E. Bot. t.* 2192. *Harv. l. c. p.* 356.—*C. lætevirens, Dillw. t.* 48. *E. Bot. t.* 1854.

In streams and rivulets and in the sea, common. If all the *supposed* marine varieties of this species really appertain to it, none can be more polymorphous. But I incline to think that more than one species is confounded under this name. The branched marine *Conferva*, indeed, require great revision, and I earnestly recommend them to the attention of those whose residence gives them an opportunity of watching these plants in their places of growth.

27. C. *ægagropila*, Linn. *Globe Conferva or Moor Balls.* Filaments issuing from a central point, forming dense roundish balls; branches erect, subsecund, straight; articulations 3—4 times longer than broad; the uppermost cylindrical, the lower swollen upwards. *E. Bot. t.* 1377. *Dillw. t.* 17. *Harv. in Hook. Br. Fl. v.* ii. *p.* 357.

In lakes, very rare. Cunnamara; *J. T. Mackay*. This curious plant forms a compact ball, varying in diameter from half an inch to 3—4 inches. It is said to be used as a pen-wiper.

b. *Inhabits maritime rocks, wet with fresh water, and only occasionally exposed to the tide.*

28. C. *Brownii*, Dillw. *Dr. Brown's Conferva.* Filaments densely cæspitose, erect, rigid, flexuose, elastic, slightly branched; branches few, long, subsimple, secund; axils acute; articulations 4—5 times longer than broad, the lower ones thickened upwards, the upper cylindrical. *Dillw. Suppl. t. D. Harv. in Hook. Br. Fl. v.* ii. *p.* 356.

On wet rocks at a cave near Dunrea, Ireland; *R. Brown, Esq.* On shady rocks at the entrance of a small cave beyond Black Castle, Wicklow, where it is exposed to the dripping of fresh water, and the occasional overflow of the tide. *Tufts* spreading, ½—1 inch high, dark glossy green. *Filaments* densely matted together, appearing to originate in a mass of creeping roots. This has a good deal the appearance of a *Vaucheria*, but the structure and substance is totally different. It is not allied to any species I know of, except, perhaps, *C. ægagropila*.

c. *Marine.*

29. C. *pellucida*, Huds. *Pellucid three-branched Conferva.* Filaments cartilaginous, rigid, erect, bright-green; trichotomous; axils very acute, branches erect; articulations many times longer than broad. *Dillw. Conf. t.* 90. *E. Bot. t.* 1716. (*excellent.*) *Harv. in Hook. v.* ii. *p.* 357.

Rocks near low-water mark, not uncommon. Miltown Malbay and Wicklow. *Stems* subsolitary, simple below, above repeatedly trichotomous, thick, rigid, full-green. The *filaments* are rarely articulated, *except* in the axils.

30. C. *Hutchinsiæ*, Dillw. *Miss Hutchins' Conferva.* Filaments cartilaginous, rigid, glaucous-green, flexuose, tufted, bristly; ramuli curved, simple or furnished on the interior face with processes of one articulation; articulations twice as long as broad. *Dillw. t.* 109. *Harv. in Hook. Br. Fl. v.* ii. *p.* 357.

Rare. Bantry bay; *Miss Hutchins. Filaments* thicker than horse hair, flexuose, 5—8 inches long, much branched.

31. C. *rupestris*, Linn. *Green Rock Conferva.* Filaments slender, rigid, dark-green, straight, tufted, bushy; branches erect, crowded; ramuli fascicled, appressed; articulations 3—4 times longer than broad. *Dillw. t.* 23. *E. Bot. t.* 1699. *Harv. in Hook. Br. Fl. v.* ii. *p.* 357.

Rocks in the sea, very common.

32. C. *nuda*, Harv. MSS. *Brownish bare-branched Conferva.* Filaments subrigid, slender, very straight, dull-green or olivaceous (when dry), sparingly dichotomous; ramuli few and scattered, appressed, the uppermost often opposite; articulations many times longer than broad.

On basalt rocks, Portstewart; *Mr. D. Moore. Filaments* loosely tufted, 2—3 inches high, sparingly branched, very straight, set with a few, scattered, very erect and appressed ramuli, the uppermost ones often opposite, which makes the apices of the branches appear three-forked. *Articulations* very long. This differs from any species with which I am acquainted, but may, perhaps, be the *C. aspera* of Agardh, which, in the *British Flora*, I have doubtfully referred to *C. nigricans*. To avoid confusion I think it better to give a new name to our present plant. In the straight filaments and appressed ramuli it resembles *C. rupestris*, but differs in colour and in the great length of the joints.

33. C. *diffusa*, Roth. *Diffuse green Conferva.* Filaments slender, rigid, dark-green, flexuose, subdichotomous; branches distant, elongated, furnished towards the top with a few short patent, secund ramuli; articulations 3—4 times longer than broad. *Dillw. t.* 21. *E. Bot. t.* 2289. *Harv. in Hook. Br. Fl. v.* ii. *p.* 358.

Marine rocks, rare. Bantry; *Miss Hutchins.* Miltown Malbay; *W. H. Harvey.* Black rocks, Portrush; *Mr. D. Moore.* This resembles *C. rupestris* in microscopic structure, but has a very different habit, being loosely tufted, bristly, with distant and almost naked branches.

34. C. *albida*, Huds. *Whitish cottony Conferva.* Filaments very slender, capillary, flaccid, pale yellow-green, forming dense silky tufts; branches crowded, irregular, the uppermost patent and mostly opposite; ramuli opposite or secund; articu-

lations 4—5 times longer than broad. *Dillw. Suppl. t. B.—E. Bot. t.* 2327. *Harv. in Hook. Br. Fl. v.* ii. *p* 358.

On the larger Algæ. Bantry; *Miss Hutchins. Filaments* exceedingly slender, pale green, which soon fades to a dirty white.

35. C. *lanosa*, Roth. *Woolly cottony Conferva.* Filaments slender, short, yellow-green, forming dense tufts; branches virgate, erect, subdistant, straight, alternate or opposite, with a few alternate or secund ramuli, axils very acute; lower articulations twice, upper six times as long as broad. *Dillw. Suppl. t. E.—E. Bot. t.* 2099. *Harv. in Hook. Br. Fl. v.* ii. *p.* 358.

On rocks and the larger Algæ. *Tufts* an inch long, pale yellow-green.

36. C. *arcta*, Dillw. *Close green Conferva.* Filaments elongated, forming silky tufts of a full æruginose-green colour, much branched; branches erecto-patent, crowded; ramuli erect, appressed, opposite or alternate; lower articulations as long as, upper much longer than broad. *Dillw. Suppl. t. E. E. Bot. t.* 2098. *Harv. in Hook. Br. Fl. v.* ii. *p.* 359.

On various Algæ. Bantry; *Miss Hutchins.* Kilkee, County of Clare. *Filaments* 3—6 inches long, brilliant green, flaccid. *Branches* straight. The joints are very variable in length; in some specimens which I have seen they are uniformly short, whence I presume that this, or *C. centralis*, may be the doubtful *C. æruginosa* of Hudson.

37. C. *gracilis*, Griff. MSS. *Graceful Conferva.* Filaments slender, flexuose, silky, much branched, bright yellow-green; main branches entangled, sparingly divided, angulato-flexuose; ultimate ramuli pectinato-secund, much attenuated, straight and very long; articulations about 3—5 times longer than broad. *Wyatt. Alg. Danm. No.* 97.

Youghal; *Miss Ball.* At Wicklow; *W. H. Harvey. Filaments* 6—12 inches high, forming beautiful tufts of a rich yellow-green colour, glossy when dry; main filaments remarkably angularly curved, covered with long, slender, delicate, pectinate ramuli, which taper to a fine point. This beautiful plant (which was lately discovered at Torquay by Mrs. Griffiths and Mrs. Wyatt) approaches, in some of its characters, the *C. flexuosa* of Dillw., a native of salt marshes, and by Agardh made a variety of *C. fracta.* The appearance, however, of *C. gracilis* is very different, and, I would hope, it is sufficiently characterized. Whether or not it be the *C. sericea* of Continental authors, I have no means of judging, and dare not decide without reference to authentic specimens. My Irish specimens, while they agree with those from Torquay in all essential particulars, fall short of them in size and beauty.

38. C. *riparia*, Roth. *Entangled shore Conferva.* Filaments elongated, slender, decumbent, pale-green, forming wide strata, flaccid, entangled, angulato-flexuose, slightly branched; lower branches short, tentacular; upper long, subsimple, with roundish axils; articulations 2—4 times longer than broad. *E. Bot. t.* 2100. *Harv. in Hook. Br. Fl. v.* ii. *p.* 359.

On sand-covered rocks, near high-water mark. Bantry; *Miss Hutchins. Filaments* very slightly branched, the lower *branches* root-like and sparingly articulated, the upper patent, with remarkably rounded axils.

64. MOUGEOTIA. *Ag.* Mougeotia.

Filaments articulated, simple, finally united by transverse tubes. *Endochrome* granular, at length forming roundish globules at the point of conjugation.—Named in honour of *J. B. Mougeot,* an excellent German botanist.

1. M. *genuflexa,* Ag. *Knee-bent Mougeotia.* Filaments slender, fragile, at length genuflexed and irregularly united by short transverse tubes; endochrome half filling the articulation; globules sphærical. *Ag. Syst. p.* 83. *Harv. in Hook. Br. Fl. v.* ii. *p.* 360.—*Conf. genuflexa, Dillw. t.* 6.

In ditches and pools, forming vast yellowish strata.

65. TYNDARIDEA. *Bory.* Tyndaridea.

Filaments simple, finally inosculating by transverse tubes. *Endochrome* consisting of two sub-rotund masses *(stellæ),* which after conjugation unite and form a roundish globule *(sporidium),* lodged either in one of the articulations, or in the connecting tube.—Name; *Tyndaridæ,* the constellations of *Castor* and *Pollux,* in allusion to the *twin, star-like* globules of the *Endochrome.*

1. T. *cruciata,* Harv. *Cross-like Tyndaridea.* Stellæ roundish; sporidia subglobose, lodged in one of the filaments. *Harv. in Hook. Br. Fl. v.* ii. *p.* 361.—*Conf. bipunctata, Dillw. t.* 2.

In ditches and pools.

2. T. *pectinata,* Harv. *Comb-like Tyndaridea.* Stellæ transversely linear, pectinate; globules contained in the swollen transverse tubes. *Harv. in Hook. Br. Fl. v.* ii. *p.* 361.—*Conf. bipunctata, E. Bot. t.* 1610.

In ditches, &c. with the preceding.

66. ZYGNEMA. *Ag.* Zygnema.

Filaments articulated, simple, finally united by transverse tubes. *Endochrome* forming dotted spiral rings, which after conjugation are condensed into a globule in one of the filaments.—Name; ζυγος, a *yoke,* and νημα, a *thread;* the filaments being yoked together.

1. Z. *nitidum,* Ag. *Shining Zygnema.* Filaments dark

green, parallelly joined; articulations with numerous arching spires. *Harv. in Hook. Br. Fl. v.* ii. *p.* 362.—*C. nitida, Dillw. t.* 4. *f. c. (bad.)*

In ditches, &c.

2. Z. *deciminum*, Ag. *Two-spired Zygnema.* Filaments dark-green, parallelly joined; spires double, cruciate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 362.—*Conf. jugalis, Dillw. t.* 5. *and C. nitida, t.* 4. *f. A. B.*

In ditches, &c. *Spires* double, crossing each other, like a continual multiplication of the Roman numeral X, whence the specific name.

3. Z. *quininum*, Ag. *One-spired Zygnema.* Filaments pale yellow-green, parallelly joined; spires simple. *Harv. in Hook. Br. Fl. v.* ii. *p.* 362.—*Conf. spiralis, Dillw. t.* 3.

In ditches, &c. very common. This is marked with a spiral line, resembling a multiplication of the numeral V. If the length of the *joints*, and the *diameter* of the filaments, be considered specific characters in this genus, it would be easy (as some authors have done) to multiply the species to any extent. Their characters are eminently variable; indeed, in a single specimen, all gradations are often to be found.

TRIBE XVIII. SIPHONEÆ.

Plants found in the sea, in fresh water, or on damp ground, of a membranaceous or horny hyaline substance; filled with a green granular matter. Frond tubular, filamentous; the filaments free, or collected into spongy difform fronds, which are either crustaceous, globular, cylindrical, or flat. Fructification: vesicles (conioscystæ) external, often stalked, containing a granular mass.

67. CODIUM. *Stackh.* Codium.

Frond spongy, dark green (crustaceous, globular, cylindrical, or flat), composed of an interwoven mass of tubular, continuous filaments. *Fructification:* opaque vesicles, attached to the filaments near the surface of the frond.—Name; κοδιον the *skin* of an animal; from the soft nature of the frond.

1. C. *tomentosum*, Stackh. *Tomentose Codium.* Frond cylindrical, dichotomous. *Hook. Br. Fl. v.* ii. *p.* 318.—*Fucus tomentosus, Turn. t.* 135. *E. Bot. t.* 712.

On rocks in the sea, frequent. 6—12 inches long, much branched. Since the publication of the *British Flora*, my friend, Mrs. Griffiths, has been so fortunate as to add another species of this interesting genus to our native list. This is *C. adhærens, Ag. Syst. p.* 178, which forms spreading crustaceous masses of indefinite form or size. Her specimens were gathered at Torquay.

2. C. *Bursa*, Ag. *Pouch Codium.* Frond sphærical, hollow. *Hook. Br. Fl. v.* ii. *p.* 318.—*Fucus Bursa, Turn. Hist. t.* 136.

Very rare. Belfast; *Mr. Templeton.*

68. BRYOPSIS. *Lamour.* Bryopsis.

Frond membranaceous, filiform, tubular, cylindrical, glistening, branched; the branches imbricated, or distichous and pinnated, filled with a fine green, minutely granuliferous fluid. *Grev.*—Name; *βρυον*, a *moss*, and *ωψις*, an *appearance.*

1. B. *plumosa*, Ag. *Feathered Bryopsis.* Frond filiform, branched, naked below, the branches scattered, spreading, twice or thrice pinnated, the pinnæ pectinated. *Grev.*—*Hook. Br. Fl. v.* ii. *p.* 318.—*Ulva plumosa, E. Bot. t.* 2375.

Rocks, &c. in the sea, not rare.

2. B. *hypnoides*, Lamour. *Hypnum-like Bryopsis.* Frond slender, very much branched; the branches long; the ramuli capillary, irregularly inserted, somewhat erect, the lower ones elongated. *Grev.*—*Lamour, Journ. Bot.* 1809. *p.* 135. *t.* 1. *f.* 2. —*B. Arbuscula, Ag. Sp. Alg. v.* i. *p.* 457.

On the sides of rocky pools, left by the receding of the tide. Near Portrush; *Mr. D. Moore.* ⊙. Summer and Autumn. Nearly allied to the preceding, depending chiefly for its characters upon the nearly erect irregular ramuli.

69. VAUCHERIA. *D C.* Vaucheria.

Fronds aggregated, tubular, continuous, capillary, coloured by an internal green pulverulent mass. *Fructification:* dark-green homogeneous *vesicles* (coniocystæ) attached to the frond. *Grev,*—Named in honour of the *Rev. T. P. Vaucher* of Geneva, author of an admirable treatise on Fresh-water Confervæ.—Nine species of this genus are enumerated in Dr. Hooker's British Flora, all of which are probably to be found in Ireland; but I regret, that, never having paid much attention to these plants, I am unable to introduce more than the following five, and for the characters of these I must rely on *Greville* and *Carmichael.*

* *Vesicles solitary.*

1. V. *dichotoma*, Ag. *Large dichotomous Vaucheria.* Filaments dichotomous, fastigiate; the vesicles solitary, globose, sessile. *Grev.*—*Hook. Br. Fl. v.* ii. *p.* 319.—*Conf. dichotoma, Dillw. t.* 15. *E. Bot. t.* 932.

Pools and ditches. About Limerick, &c.

2. V. *velutina*, Ag. *Velvet Vaucheria.* Filaments creeping; branches erect, fastigiate, woven into a velvetty stratum; capsules solitary, lateral. *Carm.—Hook. Br. Fl. v.* ii. *p.* 319.

On the muddy sea-shore. At Miltown Malbay.

3. V. *Dillwynii*, Ag. *Dillwyn's Vaucheria.* Fronds branched, flexuose; vesicles globose, lateral, sessile. *Hook. Br. Fl. v.* ii. *p.* 320.—*Conf. frigida, Dillw. t.* 16.

On the ground, in damp places, common.

4. V. *terrestris*, D C. *Ground Vaucheria.* Filaments straight, forming a lax, somewhat bristly stratum (upon the ground); vesicles lateral, hemisphærical on the side of the horn-shaped peduncle or receptacle. *Grev.—Hook. Br. Fl. v.* ii. *p.* 320.

On the ground, in moist shady places.

* * *Vesicles two or more together.*

5. V. *cæspitosa*, Ag. *Tufted Vaucheria.* Filaments cæspitose; branches secund, fructiferous at the apex; vesicles sessile, globose, intermediate horn-shaped, process straight or curved. *Carm. Hook. Br. Fl. v.* ii. *p.* 321.—*Conf. amphibia, Dillw. t.* 41.

On damp earth, or by the side of ditches, &c.

TRIBE XIX. OSCILLATORIEÆ.

Plants growing in the sea, in fresh water, or on damp ground, of a gelatinous substance and filamentous structure. Filaments slender, tubular, continuous, filled with a coloured, granular, transversely striate matter, seldom branched, though often agglutinated together so as to appear branched, usually massed together in broad, floating, or sessile strata of a very gelatinous nature; occasionally erect and tufted, and still more rarely collected into radiating series, bound together by firm gelatine, and then forming globose, lobed, or plane-crustaceous fronds. Fructification: an internal mass, divided by transverse septa, finally separating into roundish or lenticular sporidia.

70. RIVULARIA. *Roth.* Rivularia.

Frond globose or lobed, rarely incrusting, green or olivaceous, carnose or gelatinous, composed of continuous filaments, annulated within, and surrounded by, or set in, *gelatine.*—Name, in allusion to the habitat of some of the species.

Sect. 1. (*Rivularia*, Roth. *Linkia*, Lyngb.) *Frond verruceform, rarely incrusting. Filaments close set, sparingly annulated within, mostly dichotomously branched, radiating from a common fixed base.*

1. R. *atra*, Roth. *Black Rivularia.* Fronds minute, scattered, globose, smooth, firm, glossy black; filaments deep green, slender dichotomous. *Harv. in Hook. Br. Fl. v.* ii. *p.* 392. *E. Bot. t.* 1798.

On marine rocks, Algæ, &c. very common.

2. R. *Pisum*, Ag. *Spherical Rivularia.* Frond globose, smooth, soft, shining, dark-green; filaments dichotomous.—*Berk. Alg. t.* 2. *f.* 2. *Harv. in Hook. Br. Fl. v.* ii. *p.* 392.

On aquatic plants, in sub-alpine streamlets.

3. R. *applanata*, Carm. *Flattened Rivularia.* Fronds minute, gregarious, orbicular, depressed, black; filaments simple, attenuated; the apices free (protruded beyond the gelatine.) *Carm.—Harv. in Hook. Br. Fl. v.* ii. *p.* 392.

On rocks and stones in the sea; first observed by *Captain Carmichael* on the Coast of Scotland.

4. R. *plicata*, Carm. *Wrinkled Rivularia.* Fronds rather large, densely gregarious, gelatinous, compresso-plicate, often hollow and ruptured, dark green; filaments many times dichotomous, attenuated. *Harv. in Hook. Br. Fl. v.* ii. *p.* 392.

On the sea-shore, near high-water mark. Innischerrig Island, Clare.

Sect. 2. (*Scytochloria*, Harv.) *Frond gelatinoso-coriaceous, lobed and bullated or incrusting. Filaments close, densely and conspicuously annulated, set in a firm gelatine, and pointing towards the periphery (not radiating.)*

5. R. *nitida*, Ag. *Shining bullated Rivularia.* Frond large, gelatinoso-coriaceous, lobed and plaited, often bullated, lubricous, shining, deep green; filaments simple or pseudo-branched. *Harv. in Hook. Br. Fl. v.* ii. *p.* 393.—*R. bullata, Berk. Alg. t.* 2. *f.* 1.

On rocks in the sea. Miltown Malbay; *W. H. Harvey.*

6. R. *plana*, Harv. *Green crustaceous Rivularia.* Frond crustaceous, plane, widely spreading, dull-green, lubricous, darker towards the centre; filaments erect, straight, tufted, pale green, subsimple. *Harv. in Hook. Br. Fl v.* ii. *p.* 394.—*Chætophora plana, Ag. Syst. p.* 28.?

On marine rocks. Miltown Malbay.

71. STIGONEMA. *Ag.* Stigonema.

Filaments tufted, cylindrical, cartilaginous, branched, inarticulate, including granules ranged in transverse dotted rings.—Name; *στιγων*, *dotted*, and *νημα*, a *thread.*

1. S. *atro-virens,* Ag. *Black-green Stigonema.* Tufted; branches slightly divided, slender, attenuated, sub-acute; rings three, dotted. *Conf. atro-virens, Dillw. t.* 25.—*Lichen pubescens, E. Bot. t.* 2318. *Bangia atro-virens, Lyngb.*—*St. atrov. Harv. in Hook. Br. Fl. v.* ii. *p.* 363.

Wet rocks in alpine situations, common. Forms broad, rigid, very dark, loose tufts.

2. S. *mammillosum,* Ag. *Mammillated Stigonema.* Branches simple, incrassated, fusiform, densely mammillose. *Ag. Syst. p.* 42. *Harv. in Hook. Br. Fl. v.* ii. *p.* 363.—*Bangia mammillosa, Lyngb. t.* 25. *(very bad.)*

Bottoms of alpine rivulets. At the Eagle's Nest, Killarney.—This forms extensive stratified tufts, and is of a softer and more flaccid substance than the preceding. Under the microscope it is at once recognised by the very peculiar papillate branches.

72. SCYTONEMA. *Ag.* Scytonema.

Filaments branched (very rarely simple), flaccid, tough, continuous, tubular. *Endochrome* brown or olivaceous, transversely striate, "at length separating at the striæ into lenticular sporidia." *Carm.*—Name; *σκοτος*, a *skin,* and *νημα,* a *thread;* the filaments are tough.

1. S. *minutum,* Ag. *Dwarf Scytonema.* Filaments minute, erect, rigid, flexuose, fastigiate, collected in a dark crust; branches short. *Harv. in Hook. Br. Fl. v.* ii. *p.* 365.

Rocks in alpine districts. At Carrigataha, near Caher, and at Killarney. This forms dark irregular patches: the *filaments* are about a line in height.

2. S. *myochrous,* Ag. *Mouse-skin Scytonema.* Filaments elongate, mostly decumbent, sub-rigid, flexuose, slender, yellow-brown; branches issuing in pairs, at right angles with the stem. *Harv. in Hook. Br. Fl. v.* ii. *p.* 365.—*Conf. myochrous, Dillw. t.* 19. *E. Bot. t.* 1555.—*β. crinalis;* filaments tufted. *Conf. mirabilis, E. Bot. t.* 2219. *(according to the original specimens, but not C. mirabilis, Dillw. t.* 96.*)*

Alpine bogs and rivulets. β. near Bantry, on *Orthotrichum rivulare; Miss Hutchins.* The geminate divaricating branches and dark brown colour (when dry) well distinguish this species.

3. S. *contextum,* Carm. *Interwoven Scytonema.* Filaments mostly simple, interwoven into a tough olivaceous stratum,

which turns to a dull green in drying. *Carm.—Harv. in Hook. Br. Fl. v.* ii. *p.* 366.

On moist shady rocks, at the foot of Turk Mountain, Killarney.

73. CALOTHRIX. *Ag.* Calothrix.

Filaments (destitute of a mucous layer), erect, tufted or fasciculate, fixed at the base, somewhat rigid, without oscillation. *Tube* continuous; *endochrome* green, densely annulated, at length dissolved into lenticular sporidia.—Name; *καλος, beautiful,* and *θριξ,* a *hair.*

1. C. *confervicola,* Ag. *Glaucous parasitical Calothrix.* Filaments minute, glaucous, erect, subulate, rigid, fasciculate. *Harv. in Hook. Br. Fl. v.* ii. *p.* 367.—*Conf. confervicola, Dillw. t.* 8. *E. Bot. t.* 2576.

On marine filamentous Algæ, common.

2. C. *scopulorum,* Ag. *Simple Rock Calothrix.* Filaments minute, erect, curved, flexuose, simple, sub-attenuate, dirty-green, agglutinated at the base, forming a continuous velvetty stratum. *Harv. in Hook. Br. Fl. v.* ii. *p.* 368.—*Conf. scopulorum, Dillw. Suppl. t. A. E. Bot. t.* 2171.

On rocks in the sea, near high-water mark, common.

3. C. *fasciculata,* Ag. *Branched Rock Calothrix.* Filaments erect, very straight, dark green, subulate, with a setaceous point, fasciculately pseudo-branched, forming a continuous velvetty stratum. *Harv. in Hook. Br. Fl. v.* ii. *p.* 368.

Marine rocks. Miltown Malbay; rare. Perhaps this is only a more fully developed state of the preceding.

4. C. *interrupta,* Carm. *Variegated Calothrix.* Filaments thick, subulate, coriaceous, glaucous-green, short, cohering in tooth-like fascicles, and forming broad tufts. *Harv. in Hook. Br. Fl. v.* ii. *p.* 368.

On mosses and lichens. Killarney, not rare. 1—2 lines high, forming remarkably tough and rigid tufts.

5. C. *distorta,* Ag. *Large Verdigris Calothrix.* Filaments elongated, bluish-green, forming large tufts, mucous, somewhat rigid, branched; branches erect, flexuose. *Harv. in Hook. Br. Fl. v.* ii. *p.* 369.—*Conf. distorta, Dillw. t.* 22. *E. Bot. t.* 2577.

In ditches, &c. investing aquatic plants. Bantry; *Miss Hutchins. Tufts* an inch long. *Filaments* slender, fine bluish-green.

6. C. *cæspitula,* Harv. *Globular tufted Calothrix.* Filaments forming close convex tufts, blackish-green, flexuose, flaccid, obtuse, here and there spuriously branched. *Harv. in Hook. Br. Fl. v.* ii. *p.* 369.

Marine rocks, very rare. Miltown Malbay. *Tufts* convex, ½—1 inch in diameter, blackish-green. *Striæ* closely set, and strongly marked.

74. LYNGBYA. *Ag.* Lyngbya.

Filaments destitute of a mucous layer, free, flexible, elongated, continuous, decumbent. *Endochrome* (green or purple), densely annulated, and finally separating at the annuli into lenticular sporidia.—Named, in honour of *H. C. Lyngbye,* a Danish Algologist, and author of an excellent work on the *Algæ* of Denmark.

1. L. *muralis,* Ag. *Wall Lyngbya.* Filaments somewhat rigid, thickish, tortuous, interwoven into a bright grass-green stratum. *Harv. in Hook. Br. Fl. v.* ii. *p.* 370.—*Conf. muralis, Dillw. t.* 7. *E. Bot. t.* 1554.

On damp walls, very common; and particularly obvious after a shower of rain.

2. L. *majuscula,* Harv. *Large Lyngbya.* Filaments very thick, issuing in long crisped bundles from a blackish-green stratum; tortuous, simple, or slightly pseudo-branched. *Harv. in Hook. Br. Fl. v.* ii. *p.* 370.—*Conf. majuscula, Dillw. Sup. t. A.*

In the sea. Bantry bay; *Miss Hutchins.* Skerries, Portrush; *Mr. D. Moore.*

75. OSCILLATORIA. *Vauch.* Oscillatoria.

Filaments invested by a common mucous matrix, rigid, elastic, oscillating, simple, continuous. *Endochrome* divided by close, parallel, transverse striæ.—Named from the curious *oscillatory* motions of the filaments.—The species, which are exceedingly numerous and difficult of definition, have hitherto been much neglected by *British,* and but very slightly touched on by *Irish* botanists. The late *Capt. Carmichael,* who studied the genus with great care and success, has added many new and curious species to the Scottish Flora, most of which may probably be found in our own country, if carefully looked after. In the following descriptions the colour of the *strata* always refers to the appearance presented to the naked eye: that of the *filaments,* to what they appear when viewed with a microscope.

* Fasciculatæ; *filaments collected into close, rigid, agglutinated fascicles.*

1. O. *Friesii,* Ag. *Fries' Oscillatoria.* Stratum bright-green, bristling with the elongated, rigid, erect, tooth-like fas-

cicles of filaments. *Harv. in Hook. Br. Fl. v.* ii. *p.* 373.—*Scytonema Bangii, Lyngb.*

On mosses, in alpine situations. At Killarney. *Stratum* 2—3 inches broad. *Filaments* pale green, slender.

2. O. *chthonoplastes,* Hoffm. *Sheathing Oscillatoria.* Stratum dull green; filaments parallel, penicillating from the apex of the decumbent, elongated, flexuose, sheath-like fascicles. *Harv. in Hook. Br. Fl. v.* ii. *p.* 373.—*Conf. vaginata, E. Bot. t.* 1995.

On the muddy sea-shores, or on naked soil by road-sides, &c.

* * Virescentes; *stratum of an æruginose or blue-green colour.*

3. O. *limosa,* Ag. *Green Mud Oscillatoria.* Stratum rich dark-green, glossy, gelatinous, with long rays; filaments green, thick, straight and rigid; striæ strongly marked and very closely set. *Harv. in Hook. Br. Fl. v.* ii. *p.* 374.

Ditches and pools.

4. O. *tenuis,* Ag. *Lesser Mud Oscillatoria.* Stratum rich dark-green, very thin, gelatinous, with short rays; filaments pale green, straight and rigid; striæ distant, not strongly marked. *Harv. in Hook. Br. Fl. v.* ii. *p.* 374.—*Conf. limosa, Dillw. t.* 20.

In muddy ditches, first spreading over the mud; finally rising in scum-like strata to the surface. *Filaments* half the diameter of those of *O. limosa,* and the stratum thinner.

5. O. *decorticans,* Grev. *Ribband Oscillatoria.* Stratum smooth, glaucous-green, membranaceous; filaments very slender, curved, pale, bluish-green; striæ distant. *Harv. in Hook. Br. Fl. v.* ii. *p.* 375.—*Conf. decorticum, Dillw. t.* 26.

Damp walls, rotten timber, &c.

* * * Nigrescentes; *stratum of a dull indistinct green, or inclining to purple, black or brown.*

6. O. *nigra,* Vauch. *Blackish Oscillatoria.* Stratum blackish-green (when dry bluish-black), with long radii; filaments pale bluish-green, thick; striæ very distinct and close. *Harv. in Hook. Br. Fl. v.* ii. *p.* 376.—*Conf. fontinalis, Dillw. t.* 64.

Ditches and ponds, common.

7. O. *autumnalis,* Ag. *Autumnal Wall Oscillatoria.* Stratum purplish or greenish black, very lubricous, shortly radiating; filaments pale bluish green; striæ subdistant. *Harv. in Hook. Br. Fl. v.* ii. *p.* 376.

On damp walls, very common in autumn and winter.

8. O. *corium*, Ag. *Leathery Oscillatoria.* Stratum thick, subcoriaceous, opaque, dull-brownish, streaked with pale-green; filaments yellowish, slender; striæ indistinct, distant. *Harv. in Hook. Br. Fl. v.* ii. *p.* 377.

On the rocky bottoms of alpine rivulets.

9. O. *subfusca*, Vauch. *Brownish-green Oscillatoria.* Stratum dull greyish brown, somewhat streaked with a green shade, soft, void of tenacity; filaments very slender, hyaline, straight; striæ conspicuous. *Harv. in Hook. Br. Fl. v.* ii. *p.* 377.

On rocks and stones in sub-alpine rivulets.

10. O. *ochracea*, Grev. *Fragile Oscillatoria.* Forming floating, cloud-like, very fragile masses of an ochrey colour; filaments scattered, very slender, acicular. *Harv. in Hook. Br. Fl. v.* ii. *p.* 378.—*Conf. ochracea, Dillw. t.* 62.

In boggy pools. Agardh considers this to be some other species in decay; in which opinion he is, perhaps, correct.

TRIBE XX. ULVACEÆ.

Plants growing in the sea, in fresh water, or on damp ground, of a membranaceous or gelatinous substance and simple structure. Frond either a tubular or flat, filiform or expanded membrane, or a gelatinous amorphous mass; hyaline, or, owing to the presence of fructification, of a green, purple, or pinkish colour. Fructification: minute green or purple granules, scattered through the frond, or arranged in fours, or in many moniliform, filamentous series. To this family (as understood by Dr. Greville), I have ventured to add the "*Nostochinæ*" of the British Flora. Any one acquainted with these plants must be aware, that though there is much apparent difference between the *extreme* genera (*Porphyra* and *Protococcus*), yet the line, even of *generic* distinction, cannot clearly be defined in the *medial* ones. Thus, *Ulva* insensibly passes to *Tetraspora*, this into *Palmella*, this again into *Hæmatococcus*, which is scarcely different from *Protococcus*. *Nostoc*, I allow, in its moniliformly disposed sporules, presents a somewhat different organization, and perhaps, notwithstanding its strong affinity to *Palmella*, it might with propriety form the type of a distinct family. In structure it appears exactly intermediate between *Palmella* and *Oscillatoria.*

76. PORPHYRA. *Ag.* Porphyra or Purple Laver.

Frond plane, exceedingly thin, and (owing to the fructification) of a purple colour. *Fructification:* 1. scattered sori of oval *seeds ;* 2. roundish granules, mostly arranged in a quaternate manner, and covering the whole frond. *Grev.*—Name ; *πορφυρος, purple.*

1. P. *laciniata,* Ag. *Torn Purple Laver or Slouk.* Fronds deeply and irregularly cleft, with broad segments; margin variously cut and waved. *Hook. Br. Fl. v.* ii. *p.* 310.—*Ulva umbilicalis, E. Bot. t.* 2296.

On rocks in the sea, common.

2. P. *vulgaris,* Ag. *Simple-waved Purple Laver.* Frond simple, broadly lanceolate, the margin much waved. *Hook. Br. Fl. v.* ii. *p.* 310.

Rocks in the sea with the last, but (in Ireland) much less common.

3. P. *linearis,* Grev. *Narrow Purple Laver.* Frond linear or linear-lanceolate, acute, the margin rarely flat. *Grev.*—*Hook. Br. Fl. v.* ii. *p.* 311. *Grev. Alg. t.* 18.

Marine rocks ; reaching perfection in the winter months. Dunmore, near Waterford ; *Miss A. Taylor.* Miltown Malbay.—A beautiful and distinct species, 3—5 inches high, and rarely half an inch broad.

77. BANGIA. *Lyngb.* Bangia.

Frond flat, capillary, membranaceous, of a green, reddish or purple colour. *Fructification : granules* arranged more or less in a transverse manner. *Grev.*—Named in honour of *Hoffman Bang,* a Danish Naturalist.

1. B. *fusco-purpurea,* Lyngb. *Brownish-purple Bangia.* Filaments elongated, decumbent, nearly straight, equal, forming a brownish or purple stratum, glossy ; granules few (about 5) in each fascia. *Hook. Br. Fl. v.* ii. *p.* 316.—*Conf. fusco-purpurea, Dillw. t.* 92. *E. Bot. t.* 2055. *also C. atro-purpurea, Dillw. t.* 103. *E. Bot. t.* 2085.

Marine rocks, rare. Bantry ; *Miss Hutchins.*

2. B.? *lætevirens,* Harv. *Bright-green Bangia.* Filaments minute, tufted, flexuose, attenuated to a sub-obtuse point, bright-green ; fasciæ close, composed of innumerable minute granules. *Harv. in Hook. Br. Fl. v.* ii. *p.* 317.

On old fronds of *Enteromorpha intestinalis,* near high-water mark, Miltown Malbay.

3. B.? *Laminariæ,* Lyngb. *Laminaria Bangia.* Filaments simple, cæspitose, equal, olive-green ; granules minute, arranged in a double series of about four. *Hook. Br. Fl. v.* ii. *p.* 316. *Lyngb. Dan. t.* 24.

Parasitical on *Alaria esculenta* at Arran ; *Mr. R. Ball* and *Mr. W. Thompson.*

78. ENTEROMORPHA. *Link.* Enteromorpha.

Frond tubular, hollow, membranaceous, of a green colour and reticulated structure. *Fructification:* three or four roundish *granules*, aggregated in the reticulations. *Grev.*—Name; *εντερον*, the *entrail*, and *μορφη*, a *form* or *appearance.*—This genus chiefly differs from *Ulva* in its tubular and much branched frond.

1. E. *intestinalis*, Link. *Intestinal Enteromorpha.* Fronds elongated, broadly linear, inflated and sinuated, simple (often floating.) *Grev. Hook. Br. Fl. v.* ii. *p.* 314.

On the shore, and in ditches and pools, both of salt and fresh water.

2. E. *compressa*, Grev. *Compressed Enteromorpha.* Frond tubular, linear or filiform, simple or branched, subcompressed, the branches elongated, attenuated at the base. *Grev. Hook. Br. Fl. v.* ii. *p.* 314.

Sea-shores, common.

3. E. *clathrata*, Grev. *Latticed Enteromorpha.* Frond much and irregularly branched, slender, filiform, reticulated; branches attenuated to a fine point. *Grev. Alg. Br. p.* 181. *Hook. Br. Fl. v.* ii. *p.* 318. *(also E. erecta, and E. ramulosa, Hook. l. c.)—Conf. paradoxa, Dillw. E. Bot. t.* 2328.—*Ulva ramulosa, E. Bot. t.* 2137·

Sea-shores. This is distinguished by its latticed frond, and attenuated branches.

79. ULVA. *Linn. (part of.)* Ulva, or Laver.

Frond membranaceous, of a green colour, plane (in some cases saccate, and inflated in the young state.) *Fructification:* minute *granules*, mostly arranged in fours. *Grev.*—Name; supposed to be from *Ul*, *water*, in Celtic.

* *Marine.*

1. U. *latissima*, Linn. *Broad Ulva or Laver.* Frond broadly ovate or oblong, flat, delicately membranaceous, of a full-green colour. *Hook. Br. Fl. v.* ii. *p.* 311.—*U. Lactuca, E. Bot. t.* 1551.

Rocks and stones in the sea, very common.

2. U. *Lactuca*, Linn. *Lettuce green Laver.* Frond at first obovate, saccate, inflated, at length cleft down to the base, the segments plane, unequal, laciniate, semi-transparent. *Grev.*—*Hook. Br. Fl. v.* ii. *p.* 311.

Rocks, &c. in the sea. *Substance* very delicate, adhering firmly to paper.

3. U. *Linza*, Linn. *Ribband green Laver.* Frond linear-lanceolate, acute, undulate at the margin, composed of two membranes closely applied. *Harv. in Hook. Br. Fl. v.* ii. *p.* 311.

Rocks and stones in the sea. The double membrane of this species closely allies it to the genus *Enteromorpha*; from which, indeed, it rather differs in habit than by any distinct character.

* * *Found in fresh water.*

4. U. *bullosa*, Roth. *Blistered Ulva.* Frond very delicate, somewhat gelatinous, at first saccate, afterwards becoming expanded into a broad, waved or torn floating membrane. *Hook. Br. Fl. v.* ii. *p.* 312. *E. Bot. t.* 2320.

In stagnant fresh-water pools and ditches. This species scarcely differs in its frond and fructification from *Tetraspora*, and, indeed, there are some varieties very difficult to be distinguished from *T. lubrica.* Dr. Hooker hints, that it may be only *U. Lactuca*, altered by growing in fresh water. It is impossible to say whether or not this opinion be correct, for in plants of such low organization, when *place of growth* constitutes a specific character, the difference between *species* and *varieties* is often so vague, that we are forced, in many cases, to rest content with a random guess.

* * *Grow on damp ground, walls, rocks, paling, &c.*

5. U. *crispa*, Lightf. *Crisped Ulva.* Fronds saccate, firm, densely cæspitose, plaited and wrinkled, of a roundish form. *Hook. Br. Fl. v.* ii. *p.* 312.

On damp walls, the thatched roofs of cottages, &c. very common.

6. U. *calophylla*, Spreng. *Beautiful Ulva.* Fronds densely cæspitose, plane, lineari-ligulate, attenuated at base (often stipitate), longitudinally striate, each striæ marked with a series of bi-quaternate granules. *Hook. Br. Fl. v.* ii. *p.* 312.—*Bangia calophylla, Carm. in Grev. Crypt. t.* 220.

On damp stones, walls, &c. On a damp window-stone in the City of Limerick, gathered in abundance in the month of February; *W. H. Harvey.* A highly beautiful and curious plant. *Frond* 3—4 lines long, rising from a filiform, cylindrical, (?) often elongated stipes, from which it suddenly expands into a strap-shaped or narrow oblong membrane. *Dr. Greville* does not notice this stipes, except in calling the fronds "attenuated at the base." In many instances I allow they are gradually attenuated, but in others I have distinctly seen them suddenly expand from a filiform and *apparently* cylindrical stem, which is transversely fasciate, and, indeed, strongly resembles the filament of *Lyngbya speciosa.* If this stem be truly cylindrical, *U. calophylla* is brought still closer to *U. velutina.* I may also remark, without wishing to favour the opinion, that the supposed transmigration of this species into *Lyngbya muralis*, (which Agardh ridicules in the second vol. of his *Species Algarum, Introd. p.* xlv.) may be accounted for by supposing that this stipes has been noticed by those who hold such opinions.

7. U. *furfuracea*, Horn. *Furfuraceus Ulva.* Fronds very minute, roundish, ovate, distinct, sub-erect, forming a thin crowded stratum; sporidia large, mostly in fours. *Hook. Br. Fl. v.* ii. *p.* 312. *Grev. Crypt. Fl. t.* 265.

On damp walls, &c. in several places about Limerick; *W. H. Harvey.*

80. TETRASPORA. *Link.* Tetraspora.

Frond tubular, inflated or plane, gelatinoso-membranaceous, of a green colour. *Fructification:* minute *granules*, mostly arranged in fours.—Name; τετρα, *four*, and σπορα, a *seed;* from the arrangement of the sporules.

1. T. *gelatinosa*, Desv. *Gelatinous Tetraspora.* Frond vesicular, ovate, clavate, very gelatinous. *Ag. Hook. Br. Fl. v.* ii. *p.* 313.

Fresh water stream at Mucruss, Killarney. *Fronds* exceedingly lubricous and gelatinous, but firm, delicately waved and plaited, of an ovate outline, attached to water plants. *Sporules* arranged in fours, or irregularly scattered.

2. T. *lubrica*, Ag. *Lubricous Tetraspora.* Frond quite simple, tubular, gelatinous, waved and sinuated. *Hook.—Hook. Br. Fl. v.* ii. *p.* 313.

In running fresh water. Castlemartyr; *Miss Ball.* Larger than the preceding, less gelatinous, with a more distinct membrane.

81. PALMELLA. *Lyngb.* Palmella.

Plant a polymorphous gelatinous mass, filled with scattered globular or elliptical *granules.*—Name; παλμος, *vibration;* from the loosely gelatinous nature of these plants.—The granules are sometimes arranged in fours, in which case the line of distinction between *Palmella* and *Tetraspora* vanishes.

1. P. *protuberans*, Ag. *Soft shapeless Palmella.* Gelatine thick, irregularly lobed, very soft, green; granules elliptical. *Harv. in Hook. Br. Fl. v.* ii. *p.* 396. *Grev. Crypt. Fl. t.* 243. *f.* 1.—*Ulva protuberans*, *E. Bot. t.* 2583.

Moist rocks, among mosses.

2. P. *cruenta*, Ag. *Purple Palmella.* Frond crust-like, indeterminate, very thin, of a full red colour. *Grev. Crypt. Fl. t.* 205.—*Tremella cruenta*, *E. Bot. t.* 1800.

On moist limestone or white-washed walls, frequent in cellars.

3. P. *botryoides*, Lyngb. *Small clustered Palmella.* Minute; fronds densely crowded, globose, somewhat lobed, green,

sub-orbicular; granules elliptical. *Grev.—Crypt Fl. t.* 243. *f.* 2. *Harv. in. Hook. Br. Fl. v.* ii. *p.* 396.

In heathy places, in moist situations.

4. P. *hyalina,* Lyngb. *Green pellucid Palmella.* Frond globose or somewhat elongated, pellucid green, the granules globose, green. *Grev.—Grev. Crypt. Fl. t.* 247. *Harv. in Hook. Br. Fl. v.* ii. *p.* 397.

In fresh water streams, &c.

82. NOSTOC. *Vauch.* Nostoc.

Frond gelatinous, or coriaceous, lobed, hollow, or solid; filled with crisped, moniliform *filaments,* which are finally dissolved into sporules.—Name, of unexplained meaning.—This genus differs from *Palmella,* solely in the filamentous arrangement of the sporules. To *Berkeley's* genus *Monormia (Gr. Alg. p.* 46. *t.* 18.*)* it is still more closely allied, but appears sufficiently distinct.

1. *Olive-green, terrestrial.*

1. N. *commune,* Vauch. *Common Nostoc.* Terrestrial; frond expanded, polymorphous, plicato-undulate green. *Harv. in Hook. Br. Fl. v.* ii. *p.* 398.—*Tremella Nostoc, E. Bot. t.* 461.

Gravelly soils, among rocks, &c. after rain.

2. N. *foliaceum,* Ag. *Leafy Nostoc.* Cæspitose, membranaceous, plicato-rugose, somewhat erect. *Ag. Syst. p.* 19. *Harv. in Hook. Br. Fl. v.* ii. *p.* 399.

On clayey, moist ground.

3. N. *microscopicum,* Carm. *Minute Nostoc.* Fronds densely aggregated, very minute, polymorphous, immersed in a blackish crust. *Harv. in Hook. Br. Fl. v.* ii. *p.* 399.

On rocks, and among mosses. At the "Wilderness," Clonmel. *Fronds* exceedingly minute, hyaline or pale olive, of various shapes, containing a few, lax, moniliform filaments.

2. *Olive-green, submersed.*

4. N. *verrucosum,* Vauch. *Plaited Nostoc.* Fronds large, gregarious, confluent, subglobose, plaited, at length hollow, blackish green. *Harv. in Hook. Br. Fl. v.* ii. *p.* 400.

On stones in alpine rivulets.

83. PROTOCOCCUS. *Ag.* Protococcus.

Plant consisting of aggregated, naked *globules,* filled with minute *granules*, and sessile on a transparent gelatinous mass.—Name; *προτος*, *first* or primary, and *κοκκος*, *fruit;* from its elementary organization.

1. P. *nivalis*, Ag. *Crimson Protococcus or Red-Snow.* Globules exactly sphærical, very minute, fine purple red, gelatinous mass, pale, spreading. *Grev.—Crypt. Fl. t.* 231. *(admirable.) Ag. Syst. and Alg. Europ. t.* 21. *Harv. in Hook. Br. Fl. v.* ii. *p.* 395.—*Hæmatococcus Grevillii, Ag. Alg. Europ. t.* 23.

On slightly inundated rocks in various places; as about Dublin, Limerick, and near Miltown Malbay. This forms stain-like patches on the surface of the rock, or spreads over decaying leaves and sticks. In the Arctic regions, and on several of the high mountains of Europe, it covers the surface of the snow in vast strata, in some places penetrating to the depth of twelve feet. I have carefully compared specimens sent by Professor Agardh from Sweden with those gathered in this country, and find them to agree in every particular.

TRIBE XXI. BYSSOIDEÆ.

Plants of doubtful affinity, related to the Fungi. Filaments articulated, hyaline or coloured. Fructification very obscure. They are found on rotten wood, among mosses, on damp ground, on glass, or in chemical solutions, and in other anomalous situations.

84. BYSSOCLADIUM. *Ag.* Byssocladium.

Filaments arachnoid, radiating from a centre, with scattered external granules.—Name; *βυσσος*, a *fungus*, and *κλαδος*, a *branch.*

1. B. *fenestrale*, Ag. *Window Byssocladium. Harv. in Hook. Br. Fl. v.* ii. *p.* 379.—*Conf. fenestralis, Dillw. t.* 94.

Very common on window-panes and damp glass, on which it forms orbicular whitish spots.

85. CROOLEPUS. *Ag.* Croolepus.

Filaments rigid, subsolid, opaque, erect, minute; falling to powder; joints often contracted.—Name; *χροος*, a *skin*, and *λεπω*, to *decorticate.*—This genus, as defined by Agardh, contains two very distinct tribes, one of which, at least, ought to be removed to the Fungi.

1. *Orange or yellow-green; fruit roundish capsules.* (Amphiconium, *Spr.*)

1. C. *aureus*, Harv. *Orange Croolepus.* Filaments forming

soft cushion-like tufts, flexuose, irregularly branched, yellow-green or orange; articulations twice as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 380.—*Trentepohlia aurea, Ag. Syst. p.* 36. *Conf. aurea, Dillw. t.* 35. *Byssus aurea, E. Bot. t.* 212.

On rocks and old trees, common.

2. C. *Jolithus,* Ag. *Orange-red Croolepus.* Filaments tufted, erect, very short, orange-red, dichotomous; articulations once and half as long as broad. *Ag. Syst. p.* 34. *Harv. in Hook. Br. Fl. v.* ii. *p.* 380.

On rocks, in woods, &c.

3. C. *lichenicolus,* Ag. *Parasitical Croolepus.* Tufts red-orange; filaments erect, fasciculated, alternately branched, rigid; articulations slightly tumid, as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 381.—*Conf. lichenicola, E. Bot. t.* 1609.

On Lichens and old trees. To me the three species of this section appear to be merely varieties of one species.

2. *Black, torulose; bearing clavate bodies resembling sporidia.*—(Helmisporium?)

4. C. *ebenea,* Ag. *Black Croolepus.* Filaments branched, erect, tufted, rigid, sub-cartilaginous, black, obtuse; articulations as long as broad. *Ag. Syst. p.* 36. *Harv. in Hook. Br. v.* ii. *p.* 381.—*Conf. ebenea, Dillw. t.* 101. *Byssus nigra, E. Bot. t.* 702.

On rocks and trees, in alpine districts.

86. PROTONEMA. *Ag.* Protonema.

Filaments sub-articulated, branched, rooting, mostly green.—Name; *προτος, first* or *primary,* and *νημα,* a *thread.*—These obscure plants are probably rudimentary mosses.

1. P. *umbrosum,* Ag. *Shaded Protonema.* Stratum velvetty-green; filaments erect, obtuse, fastigiate, fragile; articulations gibbous. *Ag. Syst. p.* 43. *Harv. in Hook. Br. Fl. v.* ii. *p.* 383.—*Conf. umbrosa, Dillw. t.* 61.

On moist ground.

2. P. *cryptarum,* Ag. *Cave Protonema.* Filaments dichotomous, green; branches divaricating, acuminated; articulations thrice as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 393.—*Conf. cryptarum, Dillw. Syn. t. D. E. Bot. t.* 2588.

In caves in the North of Ireland; *R. Brown, Esq.* and *Mr. Templeton.*

3. P. *Orthotrichi,* Ag. *Parasitical Protonema.* Filaments olivaceous, minute, branched, obtuse, erect; articulations about

as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 383.—*Conf. Orthotrichi, Dillw. t.* 89. *Conf. muscicola, E. Bot. t.* 1638.

On the leaves of various *Orthotricha*, common.

4. P. *muscicola*, Ag. *Chestnut-coloured Protonema.* Filaments brown, branched; branches alternate, divaricate, subulate; articulations thrice as long as broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 383.—*Conf. castanea, Dillw. t.* 72. *E. Bot. t.* 1701.

87. HYGROCROCIS. *Ag.* Hygrocrocis.

Filaments hyaline, interwoven into an uniform membrane or gelatine. (Inhabit chemical solutions.)—Name; *υγρος, belonging to water*, and *κροκις*, a *little tuft.*

1. H. *Atramenti*, Ag. *Ink Hygrocrocis.* Filaments dichotomously branched, minute, decumbent, densely interwoven in a white stratum; articulations longer than broad. *Harv. in Hook. Br. Fl. v.* ii. *p.* 384.

On the surface of ink, very common. The remaining British species, which are found in solutions of muriate of barytes, of gum dragon, and of isinglass size, in rose-water and in Madeira wine, may probably be found in this country, but, as I have not seen *native specimens* (! !), I decline introducing them.

88. LEPTOMITUS. *Ag.* Leptomitus.

Filaments hyaline, erect, parasitical, growing in fresh water or in the sea.—Name; *λεπτος, slender*, and *μιτος*, a *thread.*—These minute organizations usually grow on decaying animals.

1. L. *lacteus*, Ag. *White Leptomitus.* Filaments branched, clustered in a shapeless gelatinous mass, dirty-white; branches from each dissepiment; articulations very long. *Ag. Syst. p.* 48. *Harv. in Hook. Br. Fl. v.* ii. *p.* 385.—*Conf. lactea, Dillw. t.* 79.

In ditches and rivulets, on stones, wood, &c. I have observed it in ditches near the College Botanic Garden, Dublin, and about Mountmellick, Queen's County.

2. L. *clavatus*, Ag. *Club-shaped Leptomitus.* Filaments simple, hyaline; apex clavate. *Ag. Syst. p.* 49. *Harv. in Hook. Br. Fl. v.* ii. *p.* 385.

On rotten fishes and dead flies (!).

DIV. IV. DIATOMACEÆ.*

Granules (frustula) of various forms, plane or compressed, more or less hyaline or transparent, rigid and fragile, in parallel series or circles, free, naked, or imbedded in a mucous mass or gelatinous frond, at length separating into definite segments.— Small, often very minute plants, in the sea or in fresh water, mostly parasitic, or forming floating masses, or mixed with other aquatic vegetables. *Grev.*

TRIBE XXII. DESMIDIEÆ.

Filaments cylindrical or angular, at length separating into segments (frustula.) Grev.

89. MELOSEIRA. *Ag.* Meloseira.

Frustula forming simple, pseudo-articulated *filaments*, constricted at the articulations, fragile, easily separating. *Grev.* —Name; μελος, a *membrane*, and σειρα, a *chain;* in reference to the form of the filaments.

1. M. *lineata*, Ag. *Striated Meloseira.* Filaments fragile, contracted at the articulations, transversely striated with one or two fine lines, the joints 2—3 times longer than they are broad. *Grev.—Grev. in Hook. Br. Fl. v.* ii. *p.* 402.—*Conf. lineata, Dillw. p.* 44. *t. B.*

In streams and ditches, floating in dark-brown masses. At Plassey, near Limerick; *W. H. Harvey.* The *Endochrome*, a brown colouring matter of the joint, becomes finally parted into two distinct masses of a roundish oblong figure.

TRIBE XXIII. FRAGILARIEÆ.

Filaments plane, extremely fragile, composed of rectilinear frustula. (Frustula sometimes apparently radiating from a centre, and not presenting the appearance of a filament.) Grev.

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* Irish Botanists have scarcely attended to this minute but curious tribe of Plants, (we have yet had no *Carmichael* or *Greville* amongst us); and I am ashamed to say, that out of fifty-seven British species—most, if not all, of which are probably natives of Ireland—I can only claim eighteen as having a right to a place in our Flora. Of the following *British* genera no species has hitherto been noticed in our rivers, or on our shores: *Desmidium, Achnanthes, Styllaria, Homœocladia, Berkeleya, Micromega*, and *Cymbella.* Not being very conversant with these plants, I have, in the following descriptions, adhered to Dr. Greville's words in *Hook. Brit. Flora, vol.* ii. *p.* 401, *et seq.*

90. FRAGILARIA. *Lyngb.* Fragilaria.

Frustula forming plane, pseudo-articulated, densely striated, fragile ***filaments***, separating at the striæ (not cohering at their angles.)—Name, from their ***fragile*** character. ***Grev.***

1. F. ***pectinalis***, Lyngb. ***Pectinated Fragilaria.*** Filaments rigid, attenuated, densely striated, the joints 3—4 times broader than they are long. ***Grev.—Grev. in Hook. Br. Fl. v.*** ii. ***p.*** 403. —***Conf. pectinalis, Dillw. t.*** 24. ***E. Bot. t.*** 1611.

Rivers and stagnant waters. Near Limerick; *W. H. Harvey.*

91. DIATOMA. *Ag.* Diatoma.

Frustula forming pseudo-articulated, plane ***filaments***, at length separating and cohering at their angles.—Name; διατομη, ***incision;*** from the divisions as far as the angles, which cohere. ***Grev.***

* *Frustula (or joints) rounded.*

1. D. ***auritum***, Lyngb. ***Auriculated Diatoma.*** Filaments yellow, the joints quadrate, rounded, with an auricle at each angle. ***Grev.—Grev. in Hook. Br. Fl. v.*** ii. ***p.*** 404. ***Lyngb. Hyd. Dan. p.*** 182. ***t.*** 62.

Very rare. At Youghal parasitic on *Cal. polyspermum*; *Miss Ball.*

2. D. ***obliquatum***, Lyngb. ***Oblique-jointed Diatoma.*** Filaments short, unequal, the joints half as long again as they are broad, punctate, and transversely banded. ***Grev.—Grev. in Hook. Br. Fl. v.*** ii. ***p.*** 405.—***Conf. obliquata, E. Bot. t.*** 1869.

Parasitic on marine Algæ: very rare. Ardinairy Point, Wicklow, on *Griffithsia simplicifilum; W. H. Harvey.*

* * *Frustula (or joints) square, (not rounded.)*

3. D. ***striatulum***, Ag. ***Banded Diatoma.*** Filaments somewhat curved, pellucid at the articulations, the joints nearly as long as they are broad, densely and transversely striated. ***Grev.—Grev. in Hook. Br. Fl. v.*** ii. ***p.*** 405.—***Conf. striatula, E. Bot. t.*** 1928.

Parasitic on marine Algæ, particularly *Cladostephus spongiosus and verticillatus;* not uncommon. A very handsome species, with curved glossy filaments half an inch or more in length.

4. D. ***marinum***, Lyngb. ***Tænia-like Diatoma.*** Filaments unequal, the joints longer than they are broad, with a trans-

verse granular yellow mass. *Grev.*—*Grev. in Hook. Br. Fl. v.* ii. *p.* 406. *Lyngb. Hyd. Dan. p.* 110. *t.* 62.

Parasitic on small Algæ in the sea, very common; investing them with a dense pulverulent covering.

5. D. *elongatum*, Ag. *Elongated Diatoma.* Filaments with a longitudinal line, the joints ten times longer than they are broad. *Grev.*—*Grev. in Hook. Br. Fl. v.* ii. *p.* 407. *Berk. Brit. Alg. p.* 21. *t.* 6.

In pools and ditches, scattered among various *Confervæ.* Near Limerick; *W. H. Harvey.*

6. D. *flocculosum*, Ag. *Flocculose Diatoma.* Filaments with a longitudinal pellucid line, the joints transversely striated, nearly equal in length and breadth. *Grev.*—*Grev. in Hook. Br. Fl. v.* ii. *p.* 407.—*Conf. flocculosa, Dillw. t.* 28. *E. Bot. t.* 1761.

Pools, ditches, &c.; parasitic on various *Confervæ.*

* * * *Frustula fasciculate or flabelliform.*

7. D. *fasciculatum*, Ag. *Fasciculated Diatoma.* Frustula linear, somewhat acuminate at each extremity. *Grev.*—*Grev. in Hook. Br. Fl. v.* ii. *p.* 407.—*Echinella fasciculata, Grev. Crypt. Fl. t.* 16. *f.* 1—3.

On marine Algæ, frequent.

8. D. *truncatum*, Grev. *Truncate Diatoma.* Frustula linear, truncate at the extremity. *Grev.*—*Grev. in Hook. Br. Fl. v.* ii. *p.* 487.—*Echinella fasciculata, β. Grev. Crypt. t.* 16. *f.* 4.

Pools and ditches, on various *Confervæ*, common.

92. FRUSTULIA. *Ag.* Frustulia.

Frustula linear, free or imbedded in a shapeless mass, solitary or binate. *Grev.*—Name, *frustula, fragments*, of which this plant is wholly composed.

1. F. *fasciata*, Ag. *Banded Frustulia.* Frustula 8—10 times longer than broad, binate or solitary, obtuse, terminated at each end by a hyaline globule; dull ochre with a hyaline central band. *Ag. Conspect. Crit. Diat. p.* 45.

In fresh water, mixed with other Algæ. Plassey; *W. H. Harvey.*

2. F. *Ulna*, Ag. *Acicular Frustulia.* Frustula linear, exceedingly slender, acicular, obtuse, marked with interrupted ochraceous bands. *Ag. Consp. Crit. Diat. p.* 45.

In fresh water, mixed with other Algæ. Plassey, near Limerick; *W. H. Harvey.* The *frustula* are often of an uniform ochraceous colour, except the apices, which are always hyaline.

TRIBE XXIV. STYLLARIEÆ.

Frustula plane, wedge-shaped.

93. LICMOPHORA. *Ag.* Licmophora.

Frustula wedge-shaped, flabelliform, stipitate. *Grev.*—Name; λικμοφορος, *fan-bearer.*

1. L. *flabellata*, Ag. *Flabellate Licmophora.* Densely tufted; when dry green and glistening; stipes elongated, very much branched; branches alternate; the frustula linear, wedge-shaped, flabelliform. *Grev.*—*Grev. in Hook. Br. Fl. v.* ii. *p.* 409.—*Exilaria flabellata, Grev. Crypt. Fl. t.* 289.

Parasitic on marine *Algæ* and *Zostera.* Bantry bay; *Miss Hutchins.* One of the most beautiful microscopic objects in the whole order of Algæ, and admirably represented in Dr. Greville's figure in the *Scot. Crypt. Flora.* It forms glistening tufts, half an inch in height.

94. MERIDION. *Ag.* Meridion.

Frustula wedge-shaped, in plain sessile circles or segments of circles.—Name; μερις, ιδος, a *portion* or *particle;* in allusion to the minute fragments which compose it. *Grev.*

1. M. *circulare*, Ag. *Circular Meridion.* Mucose stratum scarcely any; frustula united into numerous nearly complete circles. *Grev.*—*Grev. in Hook. Br. Fl. v.* ii. *p.* 409.—*Echinella circularis, Grev. Crypt. Fl. t.* 35.

Stagnant waters, among other Algæ. Plassey, near Limerick; *W. H. Harvey.*

TRIBE XXV. CYMBELLEÆ.

Frustula elliptical.

95. GOMPHONEMA. *Ag.* Gomphonema.

Frustula subgeminate, terminating a very slender, simple or branched *filament.*—Name; γομφος, a *wedge*, and νημα, a *thread;* from the shape of the frustules of the filaments. *Grev.*

1. G. *minutissimum*, Grev. *Smallest Gomphonema.* Minute, ochraceous, somewhat scattered, entangled; stipes subramose; frustules linear, wedge-shaped. *Grev.*—*Grev. in Hook. Br. Fl. v.* ii. *p.* 409. *and Crypt. Fl. t.* 244. *f.* 1.

In streams, &c. investing the leaves of grasses, common.

2. G. *paradoxum*, Ag. *Doubtful Gomphonema.* Aggregated, yellow; stipes erect, dichotomous; the frustula wedge-shaped, somewhat corymbose. *Grev.—Grev. in Hook. Br. Fl. v.* ii. *p.* 410.—*Echinella paradoxa, Grev. Crypt. t.* 25.

Parasitic on small marine Algæ; common. Scarcely of this genus, and, perhaps, more allied both in habit, and in the shape of the *frustula*, to *Licmophora.*

96. SCHIZONEMA. *Ag.* Schizonema.

Frustula in longitudinal series, and enclosed in a simple or branched filiform mucous, or membranaceous *frond.*—Name, *σχιζω, to divide*, and *νημα*, a *thread;* in allusion to the separation of the frustules. *Grev.*

1. S. *comoides*, Ag. *Tufted Schizonema.* Filaments in lax tufts, capillary, branched; branches nearly simple, elongated. *Grev.—Grev. in Hook. Br. Fl. v.* ii. *p.* 413.—*Conf. comoides, Dillw. t.* 27.

On rocks and corallines in the sea. Malbay; *W. H. Harvey.* I confess myself imperfectly acquainted with this species—I may say with the whole genus—and refer my Irish specimens, with much hesitation, to the above figure.

2. S. *Smithii*, Ag. *Sir J. E. Smith's Schizonema.* Filaments tufted, gelatinous, irregularly branched; branches spreading, acute; frustula oblong, in numerous parallel series, geminate, at length separating. *Grev.—Grev. in Hook. Br. Fl. v.* ii. *p.* 414. *Grev. Crypt. t.* 298.—*Ulva fœtida, E. Bot. t.* 2101.

On rocks &c. in the sea. Bantry Bay; *Miss Hutchins.*

I wish to take this opportunity of introducing to the notice of Irish Botanists a most useful collection of dried specimens of Algæ, now in course of publication by Mrs. Mary Wyatt, at Torquay; and I have pleasure in stating, that my valued friend, Mrs. Griffiths, (whose name is a sufficient guarantee for the correctness of the synonyms,) has kindly taken on herself the naming and arranging of all the species. Three quarto volumes, containing *One hundred and fifty* species, have already made their appearance under the title of "ALGÆ DANMONIENSES; *or dried specimens of Marine Plants, principally collected in Devonshire:*" a fourth may be expected in the course of next year. The specimens are not only beautifully preserved and displayed, but in most cases, where a species produces a *secondary* or diœcious fructification, individuals are given presenting each mode of fruit; and so great has been the care bestowed on the selection of species, that a very large number of the rarest and least known of British Algæ may be found in these volumes. Amongst others, the following may

be noticed: Fucus *tuberculatus*; Sporochnus *villosus*, *pedunculatus*; Asperococcus *compressus*, *pusillus*, *Turneri*; Punctaria *latifolia*; Cutleria *multifida*; Nitophyllum *ulvoideum*, *ocellatum*, *Gmelini*; Rhodomenia *polycarpa*; Gigartina *compressa*, *Teedii*, *erecta*; Microcladia *glandulosa*; Grateloupia *filicina*; Chætospora *Wiggii*; Codium *adhærens*; Ectocarpus *Mertensii*; Myriotrichia *clavæformis*; Spyridia *filamentosa*; Callithamnion *roseum*, *gracillimum*, *spongiosum*, *lanosum*, *polyspermum*; Polysiphonia *elongella*; Bryopsis *hypnoides*; Conferva *gracilis*, *centralis*, *uncialis*, *rectangularis*: Mesogloia *coccinea*, *purpurea*, *Hudsoni*; Trichocladia *Griffithsiana*, *virescens*; Lyngbya *majuscula*; and many others. The work may be had on application to Mary Wyatt, Dealer in Shells, &c. Torquay, Devonshire. *W. H. Harvey.*

ADDITIONS AND CORRECTIONS IN PART FIRST.

Page 21, after *Draba incana*, insert—

D. *muralis*, Linn. *Speedwell-leaved Whitlow-grass.* Stem branched; leaves ovate, obtuse, amplexicaul, toothed; pouch patent, glabrous. *Br. Fl. ed.* 3. *p.* 303. *E. Bot. t.* 912.

Blarney Castle, Cork; *Mr. J. Drummond.*

Page 62, after *Sedum*, where it was accidentally omitted, insert—

RHODIOLA. *Linn.* Rose-root.

Barren fl. Calyx 4-partite. *Pet.* 4. *Glands* 4, emarginate. *Fertile fl. Cal.* 4-partite. *Pet.* 4. *Glands* 4, emarginate. *Germens* 4. *Caps.* many-seeded.—Name, ροδον, a *Rose*, from the scent of the roots. *Diœcia. Enneandria.*

1. R. *rosea*, Linn. *Rose-root. Br. Fl.* 1. *p.* 437. **E. Fl. v.* iv. *p.* 216. *E. Bot. t.* 508.

Wet rocks on Brandon and other mountains in Kerry, south Isles of Arran, Ben Bulben, and Donegal mountains. Island of Rathlin; *Mr. Templeton.*

Page 70, after *Lythrum hyssopifolium*, insert—

L. *virgatum*, Linn. *Fine-branched Lythrum.* Leaves opposite, lanceolate; panicle virgate; flowers ternate. *Pers. Syn. v.* 2. *p.* 7. *Jacq. Aust. t.* 7.

Found by Doctor Coulter in a field a mile north-west of Dundalk, in 1819; but, as he only found a single plant, it has probably been introduced.

Page 84, after *Lathyrus palustris*, insert—

L. *pisiformis*, Linn. *Sea-side Pea.* Peduncle many-flowered, shorter than the leaves; tendrils with 3—4 pair of ovate leaflets, unequally cordato-hastate, with the angles acute. *Hook. in Fl. Borr. Am. v.* i. *p.* 158. *Br. Fl. ed.* 3. *p.* 324.—*Pisum maritimum, Linn. Hook. Br. Fl. ed.* 1. *p.* 324.

For Hab. see p. 82, under *Pisum maritimum.* Doctor Hooker, upon a careful examination of the style, in this species, now feels assured that it ought to be referred to Lathyrus.

Page 171, after *Myosotis arvensis*, insert—

M. *collina*, Hoffm. *Early field Scorpion-grass.* Fruit smooth; calyx with spreading uncinate bristles; when in fruit ventricose, opening, equalling the diverging pedicels; limb of the corolla concave, shorter than the tube, (raceme with one distant flower at the base.) *Borr. in E. Bot. Suppl. Sub. fol.* 2629. *Br. Fl. ed.* 3. *p.* 104.—*M. arvensis, E. Bot. t.* 2558.

Sand-hills, resting on limestone between Portrush and Glenluce Castle, 22d April, 1836; *Mr. D. Moore.* It has subsequently been found in a dry sandy field at Portmarnock by *Mr. F. Whitla* and *Mr. J. Johnston.*

Page 3, line 2 from the bottom, for *Gymnosperæ*, read *Gymnospermæ.*
—— 19, —— 15 from the bottom, for *T'urvitis alpina*, read *Turritis alpina.*
—— 23, —— 6 from the bottom, for σισνμβϱιον, read σισυμβϱιον.
—— 57, —— 8 from the bottom, for *E. martimum*, read *E. maritimum.*
—— 86, —— 6 from the top, for *Icosandria Monogynia*, read *Icosandria Pentagynia.*
——107, —— 6 from the top, for *Icosandria Monogynia*, read *Icosandria Pentagynia.*
——107, —— 15 from the bottom, for *Icosandria Monogynia*, read *Icosandria Pentagynia.*
——130, —— 3 from the top, for *Pentandria Monogynia*, read *Tetrandria Monogynia.*
—— 234, in the specific characters of the three species of *Reseda*, for *Involucre*, read *Calyx.*

ADDENDA TO PART SECOND.

Page 36, after *Fontinalis antipyretica*, insert—

It is not intended that the leaves are never complicato-carinate, but that this often occurs only in appearance.

Page 55, after *Targionia hypophylla*, insert—

The *loculus* situated beneath the top of the frond, is subcompressed, and opens downwards. The seeds are in quaternions.

Page 59, after *Jungermannia Orcadensis*, insert—

I have lately observed the presence of *stipules:* these are minute, ovate, purplish, anteriorly ciliate; the cilia sometimes radicating.

Page 61, after *Jungermannia nemorosa*, insert—

A variety occurs on the summit of Brandon, County of Kerry, growing through tufts of *Hypnum loreum*, and accompanied by *Jung. Orcadensis* and *Jung. ciliaris;* with the stems elongated, the leaves of nearly an equal size and evenly set on the stem from top to bottom, the inferior lobe subacute; the upper scarcely attached to the lower, a part embracing the stem, the rest subsquarrose; both lobes rather distantly ciliate, the cilia few, elongate; the colour of the plant a reddish-brown. This will probably prove a distinct species, when we are acquainted with its fructification.

Page 91, before *Verrucaria plumbea*, insert— say V. curata:

VERRUCARIA *lucens*. *Thallus* tartareous, thin, purplish-brown or mouse-coloured, minutely cracked, black-edged. *Apothecia* sessile, very prominent, black, shining, conico-hemispherical, with a pore on the summit, numerous, rather evenly scattered.

On siliceous slate, side of Lough Finnehy, County of Kerry; May 1836. The *thallus* spreads usually some inches in diameter; its colour reminds one of *V. plumbea;* it is little altered by the application of moisture; the surface of aged portions sometimes turns greyish-brown; the black limit is very general, and always to be seen round young portions of *thallus*. The prominent, black, shining, almost glistening *apothecia* give our plant a beautiful and peculiar character. These are sometimes clustered into threes or fours; commonly, however, they are pretty evenly scattered, very visible to the naked eye, but their pore is discoverable only with the assistance of a lens. The *perithecium* is double; the *exterior* hard, thick, and black, deficient beneath; when two or more *nuclei* are clustered, passing over them all, and so including them in one shell; the *interior* is soft, of a very pale brown, enveloping the *nucleus* on all sides; this is white, pellucid, swelling when moist, and then exhibiting, if highly magnified, a dotted gelatinons round substance, at whose base is fixed a bundle of cylindrical, filiform vessels, slightly curved and attenuated at both extremities.

Page 94, after *Verrucaria umbrina*, insert—

The black crust nearly envelopes, but does not pass beneath the *nucleus*.

Page 101, before *Porina*, insert—

11. **Endocarpon** *macrocarpon*. *Substratum* of the *thallus* black, subtartareous, thin; *scales* very minute, scattered or aggregate, subfoliaceous, sublobate or subcrenate, adpressed, coarsely wrinkled, pale dusky olive when dry, light green when wet. *Apothecia* much larger than the scales, resting on the *substratum*, their summits porous.

On Dunkerron mountain; on transition slate, April 1836: associated with *Collema nigrum* and *Lecidea aromatica*, Hooker; all three having a blackish *substratum* to the *thallus*. Scales less than ¼ of a line in a diameter, affecting the crevices of rocks exposed to the south; the young smooth and nearly entire, the older coarsely wrinkled; often crowded around the neck of the *apothecia*, which thus appear emergent, but these are sometimes found without any contact with the scales; and so the generic character does not strictly apply. Our plant bears to *Endocarpon* the same relation as *Psora* of Hoffman to *Lecidea*. The apothecia are many times wider than the scales, globular, pierced above; having a double *perithecium*, the exterior hard, black, resting on the *substratum* or surface of the rock; the interior pale flesh-coloured, minutely cellular, rather thick; the *nucleus* is colourless, transparent, containing oblong bodies which are slightly opaque and vary in size and position.

12. **Endocarpon** *rugosum*. *Thallus* subtartareous, with tumid, waved, aggregate pruinose *warts*, glaucous grey, not altered when wet; *buds* in a coarse whitish powder on the summits of the warts. *Apothecia* minute, few, scattered, oblong, quite immersed, with dark-brown depressed summits.

On transition slate, Dunkerron mountain, April 1836. Patches often 2 or 3 feet in diameter, dusky glaucous, without a definite border. Central warts sometimes a line in diameter, the others much less; all crowded, rounded, waved, sprinkled with a glaucous or brown *pruina*. These protuberances originate from unequal collections of white cortical matter, over which the green parenchymatous layer passes, of an equal thickness, and is continued over adjoining warts. The older *buds* become concolorous with the *thallus*. The *apothecia* are few, not observable with the naked eye; they have no distinct pore on their thickened dark summits; they are lineari-oblong, immersed, reaching into the cortical part of the wart; the tegument not distinguishable from the *nucleus*, which is pale-brownish, smipellucid, gelatinous when wet. The *warts* of the *thallus* assume so much the appearance of *scales*, that perhaps this Lichen is better arranged under *Endocarpon* than *Verrucaria*.

Page 106, before *Opegrapha scripta*, insert—

O. *saxigena*. *Thallus* leproso-tartareous, thin, rust-brown, slightly cracked when dry, subgelatinous when moist, indeterminate; *buds* pale-green, leproso-pulverulent. *Apothecia* sessile, prominent, grouped; the disk narrow; the border tumid, uneven, somewhat broken, shining.

On mural rocks, in moist situations, Dunkerron. Although several *Opegraphæ* that usually occur on trees are found on rocks likewise in the County of Kerry, and in such case somewhat modified in appearance, yet to no other known species can the characters, especially those drawn from the buds of the present plant, be referred. The thin brownish patches are often 3 or 4 inches in diameter, and conspicuous from the green powder about the apothecia; this which constitutes the *buds* is absent in apparently aged portions of the thallus, and most abundant in spring about the newer apothecia. The *lirellæ* are at first punctiform and roundish, at length elongate, waved, and not unfrequently branched. The disk is less shining than the ragged border, whose continuity is repeatedly broken. A transverse section, under a good lens, shows the disk to be covered with a black *pruina*, the *lamina* pale, semipellucid, striated, occupying but a narrow groove in the upper part of the black tartareous matter of which the *lirellæ* are principally composed.

Page 107, after *Collema nigrum*, insert—

Decandolle, in his Flora Française, doubts the generic character. I have recently observed states that indicate an identity with *Parmelia plumbea, var. δ. microphylla*, of this work. H. Lich. = P. muscor. var. triphyll. Ach. Syn.

Page 109, after *Collema fragile*, insert—

Very lately I have met with apothecia more aged than those described. In a dry state they appear sessile, but thoroughly moistened, the thallodal covering swells so as nearly to close over the disk, and the border of the apothecia gradually subsides into the level of the *thallus*. The disk is brownish-olive, pruinose; the *lamina* striated, whitish above, of a pale rose-colour beneath.

Page 119, before *Lecidea premnea*, insert—

L. *latens*. *Thallus* indeterminate, very thin, leproso-tartareous, slightly cracked, somewhat uneven, of a pale æruginous green, pale-brown about the centre. *Apothecia* minute, scattered, purplish-black, flat, at length convex, and excluding the border.

On stones, in dark recesses of a bank facing the north, in the wood at the Dargle, County of Wicklow. A few black points scarcely visible on the stone, apparently discoloured by powdered clay, constitute all that this Lichen presents to the naked eye. Moistened and under the lens, it exhibits a very thin pale verdigris green crust, which is mottled with brown, and altogether brown about the apothecia, where too it is somewhat thickened. The apothecia are of different sizes—the largest, however, scarcely distinct to the naked eye, except by their brilliant black or purplish colour. The border is hardly apparent, and quite obliterated by age or the application of moisture. Dissection shows the colour of the apothecia arises from the blackish-brown *substratum* seen through the pellucid *lamina;* this is in a very thin layer, is striated, and surmounted by a glaucous disk.

Page 137, before *Lecanora varia*, insert—

L. *albo-flavida*. *Thallus* tartareous, indeterminate, rugoso-granulate, uneven, cracked; *buds* in a coarse greenish-ochrey powder. *Apothecia* sessile; the disk concave, at length flat, brown-flesh coloured; the border swollen, smooth, inflexed, granulato-crenate.

On transition rocks, facing the south, Dunkerron; not uncommon, the apothecia very rare. The habit is of *Endocarpon sulphureum*, and so the patches are closely adpressed to the rock, often 12—24 inches in diameter; but it is the proper *thallus* that gives the yellow tinge to the surface of the former, while in our plant the pale ochraceous hue is altogether borrowed from the *buds:* these are constantly present, and by their flat subcircular aggregations resemble a *Variolaria*. The *thallus* is sometimes in scattered subglobular white grains, which are waved or sublobate, often appearing carious with pits: again the grains are so approximated that the entire surface appears as a rimose crust of a sordid white. The apothecia are large in proportion to the thallodal grains. By dissection we find beneath a pale subopaque disk, a transparent, colourless, striated *lamina* of considerable thickness, and under it an opaque layer of a brick-red, which gives to the surface of the apothecia a flesh-coloured appearance. Acquainted with this plant for several years, I have been enabled to determine it only within a few days by the tardy discovery of the apothecia.

Page 140, before *Lecanora gelida*, insert—

L. *linearis*. *Thallus* of minute, linear, bright-yellow, scattered or substellato-aggregate, soft scales, waved and somewhat thickened at one end, on a very thin, pale-brownish *substratum*.

On the faces of crumbling slaty stones in dark recesses, Dunkerron mountain. At first sight this minute species might be supposed a *Lepraria;* under the lens it has stronger claims to rank among the acharian *Placodia*, for the apparent golden yellow powder scattered on the surface of the stone is found to be composed of linear elevated scales, often clustered and stellate. The apothecia are unknown.

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